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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence	3 °
Day step for calculation	1 days
Time step for calculation	1 minutes

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

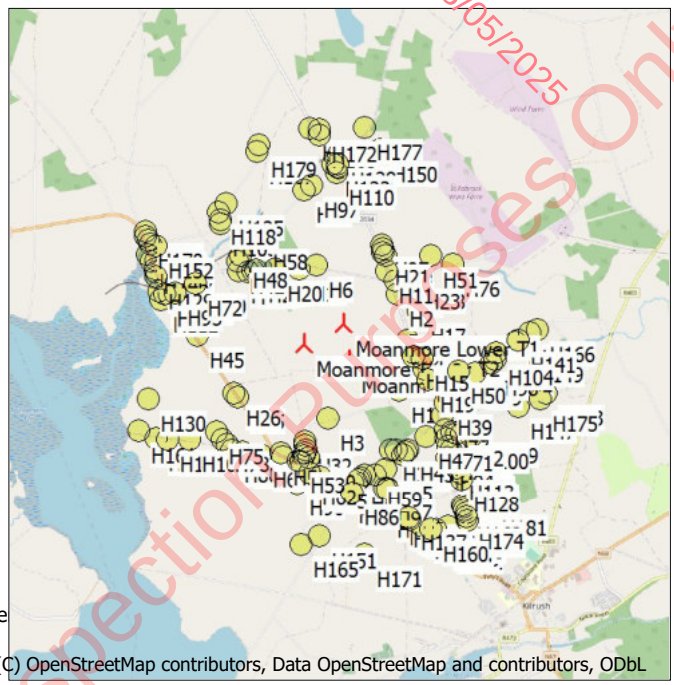
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
229	231	210	320	200	640	608	691	568	658	724	1,086

W	WNW	NW	NNW	Sum
671	733	661	530	8,760

Monthly aggregation of real case reduction
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: Ballykett WF Shadow Flicke
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80



Scale 1:75,000
New WTG
Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	497,742	658,147	8.1	Moanmore Lower T1	Yes	VESTAS	V136-4.5-4,500	4,500	136.0	82.0	1,804	10.4
2	497,347	657,950	11.9	Moanmore Lower T2	Yes	VESTAS	V136-4.5-4,500	4,500	136.0	82.0	1,804	10.4
3	497,795	657,771	13.4	Moanmore Lower T3	Yes	VESTAS	V136-4.5-4,500	4,500	136.0	82.0	1,804	10.4

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	498,280	657,469	24.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	498,287	658,418	12.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	497,569	657,205	21.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	498,382	657,964	14.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	498,410	657,916	16.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	497,486	658,726	10.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G	H7	498,420	657,877	17.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H	H8	498,432	657,801	18.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I	H9	498,431	657,843	17.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J	H10	498,261	658,557	14.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K	H11	498,184	658,653	14.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L	H12	498,456	657,905	16.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M	H13	498,486	657,830	17.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N	H14	497,318	658,698	7.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O	H15	498,510	657,780	18.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P	H16	498,533	657,671	18.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q	H17	498,482	658,243	15.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R	H18	498,172	658,805	17.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
S	H19	498,566	657,577	19.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T	H20	497,071	658,703	11.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U	H21	498,151	658,844	17.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V	H22	498,150	658,878	17.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W	H23	498,454	658,590	13.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X	H24	496,946	658,692	10.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
Y	H25	496,668	657,439	14.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z	H26	496,635	657,469	12.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA	H27	498,140	658,917	17.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB	H28	498,492	658,591	13.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC	H29	496,881	658,695	9.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD	H30	496,848	658,686	9.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE	H31	496,798	658,676	9.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF	H32	497,329	656,988	19.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG	H33	497,332	656,948	20.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH	H34	498,181	656,888	33.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI	H35	496,711	658,683	8.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ	H36	497,339	656,906	21.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK	H37	498,240	656,887	32.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL	H38	497,332	656,873	22.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM	H39	498,731	657,336	27.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN	H40	497,362	656,826	22.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO	H41	497,317	656,843	23.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP	H42	496,704	658,783	6.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ	H43	498,359	656,875	32.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR	H44	498,334	656,854	32.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS	H45	496,286	658,061	6.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT	H46	498,311	656,836	32.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU	H47	498,544	657,009	29.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV	H48	496,739	658,836	5.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW	H49	498,713	657,205	28.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX	H50	498,884	657,642	27.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY	H51	498,629	658,803	17.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ	H52	497,087	656,875	22.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA	H53	497,262	656,801	23.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB	H54	497,290	656,784	23.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC	H55	498,124	656,683	35.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD	H56	497,114	656,834	22.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE	H57	497,914	656,633	30.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF	H58	496,940	659,020	7.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG	H59	498,027	656,637	33.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH	H60	497,885	656,613	31.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI	H61	498,728	657,071	29.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ	H62	497,376	656,675	26.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK	H63	497,443	656,650	27.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL	H64	496,886	656,865	20.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM	H65	497,473	656,635	27.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN	H66	497,857	656,591	32.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO	H67	497,502	656,615	27.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP	H68	497,832	656,572	32.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ	H69	497,803	656,555	30.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR	H70	496,312	658,591	6.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS	H71	498,744	656,992	34.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT	H72	496,277	658,568	6.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU	H73	498,795	657,042	31.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BV	H74	496,707	656,890	16.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BW	H75	496,452	657,094	11.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BX	H76	498,847	658,716	15.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BY	H77	496,559	656,976	14.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BZ	H78	496,506	657,019	12.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CA	H79	499,048	657,629	28.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CB	H80	496,597	656,921	16.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CC	H81	497,232	656,617	26.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CD	H82	498,850	657,037	31.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CE	H83	497,728	656,482	27.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CF	H84	498,763	656,912	37.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CG	H85	496,181	658,531	5.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CH	H86	497,786	656,464	28.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CI	H87	498,116	656,502	32.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CJ	H88	498,155	656,508	32.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
CK	H89	498,889	657,037	32.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CL	H90	497,247	656,569	27.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CM	H91	498,149	656,490	32.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CN	H92	498,785	656,875	37.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CO	H93	496,134	658,563	4.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CP	H94	498,752	656,793	37.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CQ	H95	496,075	658,482	4.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CR	H96	497,374	659,476	13.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CS	H97	497,456	659,513	15.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CT	H98	499,204	657,725	26.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CU	H99	496,018	658,458	3.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CV	H100	498,989	656,992	36.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CW	H101	498,817	656,759	37.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CX	H102	499,243	657,751	27.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CY	H103	496,529	659,156	8.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CZ	H104	499,263	657,825	26.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DA	H105	495,970	658,467	3.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DB	H106	498,105	656,327	28.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DC	H107	498,835	656,719	38.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DD	H108	496,187	657,029	11.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DE	H109	499,096	657,055	35.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DF	H110	497,702	659,639	14.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DG	H111	496,528	659,201	8.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DH	H112	495,919	658,416	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DI	H113	498,838	656,683	39.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DJ	H114	498,848	656,658	40.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DK	H115	495,911	658,504	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DL	H116	497,726	659,690	16.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DM	H117	497,720	659,702	16.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DN	H118	496,527	659,272	8.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DO	H119	498,858	656,627	40.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DP	H120	498,877	656,638	40.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DQ	H121	497,712	659,720	16.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DR	H122	497,666	659,725	15.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DS	H123	498,239	656,248	32.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DT	H124	498,867	656,595	38.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DU	H125	496,593	659,367	8.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DV	H126	498,275	656,236	34.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DW	H127	498,357	656,259	34.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DX	H128	498,877	656,564	38.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DY	H129	495,877	658,649	4.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DZ	H130	495,792	657,434	4.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EA	H131	498,385	656,239	36.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EB	H132	495,879	658,693	4.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EC	H133	495,966	657,036	8.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ED	H134	498,323	656,200	34.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EE	H135	499,447	657,920	25.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EF	H136	495,869	658,730	4.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EG	H137	498,349	656,194	35.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EH	H138	497,726	659,826	17.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EI	H139	498,367	656,184	35.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EJ	H140	498,380	656,179	35.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EK	H141	499,483	657,944	25.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EL	H142	495,884	658,812	4.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EM	H143	498,443	656,200	35.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EN	H144	498,475	656,182	35.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EO	H145	498,414	656,153	36.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EP	H146	495,834	658,794	2.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EQ	H147	499,465	657,289	31.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ER	H148	495,845	657,055	7.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ES	H149	499,543	657,842	25.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ET	H150	498,135	659,862	14.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EU	H151	497,459	656,039	23.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EV	H152	495,891	658,951	5.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

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No.	Name	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
EW	H153	498,477	656,117	33.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EX	H154	495,809	658,871	3.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EY	H155	499,595	658,009	21.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EZ	H156	498,888	656,317	38.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FA	H157	495,831	658,975	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FB	H158	498,896	656,287	38.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FC	H159	495,816	659,005	4.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FD	H160	498,569	656,079	35.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FE	H161	495,676	657,117	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FF	H162	498,907	656,261	37.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FG	H163	497,537	660,013	12.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FH	H164	498,615	656,073	37.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FI	H165	497,275	655,954	21.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FJ	H166	499,674	658,050	21.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FK	H167	496,916	659,866	8.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FL	H168	498,918	656,226	37.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FM	H169	498,745	656,110	37.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FN	H170	495,782	659,054	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FO	H171	497,902	655,849	29.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FP	H172	497,535	660,067	12.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FQ	H173	495,793	659,099	4.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FR	H174	498,919	656,196	38.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FS	H175	499,694	657,354	34.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FT	H176	498,673	656,022	40.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FU	H177	497,990	660,091	13.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FV	H178	497,452	660,089	13.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FW	H179	496,934	659,938	10.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FX	H180	498,934	656,167	39.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FY	H181	499,156	656,325	44.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FZ	H182	498,707	656,005	40.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GA	H183	499,750	657,404	33.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

Calculation Results

Shadow receptor

		Shadow, worst case			**Shadow, expected values**
No.	Name	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
A	H1	62:12	97	0:59	12:22
B	H2	81:52	136	0:53	9:46
C	H3	0:00	0	0:00	0:00
D	H4	93:09	171	0:52	17:46
E	H5	86:23	163	0:50	16:53
F	H6	35:45	56	0:48	3:17
G	H7	86:53	164	0:50	17:14
H	H8	97:57	175	0:58	19:51
I	H9	88:25	170	0:51	17:46
J	H10	55:56	110	1:00	6:28
K	H11	81:23	89	1:13	8:04
L	H12	72:29	148	0:47	14:14
M	H13	70:22	144	0:47	14:20
N	H14	63:06	87	0:49	6:16
O	H15	68:50	146	0:51	14:14
P	H16	68:14	141	0:52	14:07
Q	H17	55:43	129	0:42	8:19
R	H18	45:19	61	0:56	4:03
S	H19	47:14	121	0:45	9:47
T	H20	44:26	108	0:38	4:50
U	H21	31:38	52	0:53	2:46
V	H22	19:44	46	0:42	1:42
W	H23	44:45	105	0:41	4:55
X	H24	53:47	115	0:44	5:46
Y	H25	22:36	93	0:26	4:29

To be continued on next page...

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

...continued from previous page

No.	Name	Shadow, worst case			Shadow, expected values
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
Z	H26	29:18	101	0:27	5:42
AA	H27	10:29	36	0:22	0:53
AB	H28	44:55	109	0:38	4:56
AC	H29	54:59	116	0:43	5:54
AD	H30	55:42	118	0:43	6:00
AE	H31	57:57	119	0:42	6:17
AF	H32	0:00	0	0:00	0:00
AG	H33	0:00	0	0:00	0:00
AH	H34	0:00	0	0:00	0:00
AI	H35	54:08	120	0:41	5:58
AJ	H36	0:00	0	0:00	0:00
AK	H37	0:00	0	0:00	0:00
AL	H38	0:00	0	0:00	0:00
AM	H39	17:12	74	0:29	3:42
AN	H40	0:00	0	0:00	0:00
AO	H41	0:00	0	0:00	0:00
AP	H42	44:37	111	0:34	4:46
AQ	H43	0:00	0	0:00	0:00
AR	H44	0:00	0	0:00	0:00
AS	H45	18:56	68	0:29	3:31
AT	H46	0:00	0	0:00	0:00
AU	H47	1:57	29	0:06	0:22
AV	H48	37:43	104	0:31	3:56
AW	H49	27:48	86	0:28	5:30
AX	H50	17:33	72	0:27	3:49
AY	H51	20:45	74	0:32	2:10
AZ	H52	0:00	0	0:00	0:00
BA	H53	0:00	0	0:00	0:00
BB	H54	0:00	0	0:00	0:00
BC	H55	0:00	0	0:00	0:00
BD	H56	0:00	0	0:00	0:00
BE	H57	0:00	0	0:00	0:00
BF	H58	22:45	68	0:28	2:16
BG	H59	0:00	0	0:00	0:00
BH	H60	0:00	0	0:00	0:00
BI	H61	12:24	68	0:16	2:24
BJ	H62	0:00	0	0:00	0:00
BK	H63	0:00	0	0:00	0:00
BL	H64	0:00	0	0:00	0:00
BM	H65	0:00	0	0:00	0:00
BN	H66	0:00	0	0:00	0:00
BO	H67	0:00	0	0:00	0:00
BP	H68	0:00	0	0:00	0:00
BQ	H69	0:00	0	0:00	0:00
BR	H70	15:16	57	0:30	2:14
BS	H71	6:25	55	0:10	1:13
BT	H72	13:45	55	0:29	2:03
BU	H73	12:29	68	0:17	2:25
BV	H74	0:00	0	0:00	0:00
BW	H75	8:05	40	0:19	1:38
BX	H76	17:17	81	0:23	2:03
BY	H77	12:03	55	0:19	2:12
BZ	H78	15:02	68	0:20	2:49
CA	H79	10:55	57	0:20	2:22
CB	H80	4:05	36	0:10	0:44
CC	H81	0:00	0	0:00	0:00
CD	H82	15:02	71	0:20	2:54
CE	H83	0:00	0	0:00	0:00
CF	H84	3:40	40	0:08	0:41
CG	H85	10:52	51	0:25	1:40
CH	H86	0:00	0	0:00	0:00
CI	H87	0:00	0	0:00	0:00
CJ	H88	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

...continued from previous page

No.	Name	Shadow, worst case: Shadow hours per year [h/year]	Shadow, worst case: Shadow days per year [days/year]	Shadow, worst case: Max shadow hours per day [h/day]	Shadow, expected values: Shadow hours per year [h/year]
CK	H89	16:34	75	0:20	3:12
CL	H90	0:00	0	0:00	0:00
CM	H91	0:00	0	0:00	0:00
CN	H92	2:32	35	0:06	0:29
CO	H93	9:37	48	0:22	1:28
CP	H94	0:00	0	0:00	0:00
CQ	H95	8:44	45	0:22	1:22
CR	H96	0:00	0	0:00	0:00
CS	H97	0:00	0	0:00	0:00
CT	H98	6:27	42	0:16	1:18
CU	H99	7:49	41	0:21	1:15
CV	H100	10:05	62	0:16	1:57
CW	H101	0:00	0	0:00	0:00
CX	H102	5:48	41	0:15	1:08
CY	H103	5:22	30	0:17	0:36
CZ	H104	5:30	38	0:15	1:04
DA	H105	7:02	40	0:20	1:08
DB	H106	0:00	0	0:00	0:00
DC	H107	0:00	0	0:00	0:00
DD	H108	3:46	26	0:14	0:47
DE	H109	4:33	31	0:14	0:57
DF	H110	0:00	0	0:00	0:00
DG	H111	5:19	32	0:17	0:35
DH	H112	4:29	23	0:18	0:43
DI	H113	0:00	0	0:00	0:00
DJ	H114	0:00	0	0:00	0:00
DK	H115	4:17	22	0:18	0:39
DL	H116	0:00	0	0:00	0:00
DM	H117	0:00	0	0:00	0:00
DN	H118	5:33	34	0:17	0:37
DO	H119	0:00	0	0:00	0:00
DP	H120	0:00	0	0:00	0:00
DQ	H121	0:00	0	0:00	0:00
DR	H122	0:00	0	0:00	0:00
DS	H123	0:00	0	0:00	0:00
DT	H124	0:00	0	0:00	0:00
DU	H125	9:00	52	0:16	0:52
DV	H126	0:00	0	0:00	0:00
DW	H127	0:00	0	0:00	0:00
DX	H128	0:00	0	0:00	0:00
DY	H129	3:47	22	0:17	0:33
DZ	H130	4:23	25	0:17	0:57
EA	H131	0:00	0	0:00	0:00
EB	H132	3:38	21	0:16	0:32
EC	H133	8:08	48	0:14	1:28
ED	H134	0:00	0	0:00	0:00
EE	H135	3:19	30	0:11	0:38
EF	H136	3:35	22	0:16	0:32
EG	H137	0:00	0	0:00	0:00
EH	H138	0:00	0	0:00	0:00
EI	H139	0:00	0	0:00	0:00
EJ	H140	0:00	0	0:00	0:00
EK	H141	3:02	29	0:10	0:35
EL	H142	3:32	21	0:16	0:30
EM	H143	0:00	0	0:00	0:00
EN	H144	0:00	0	0:00	0:00
EO	H145	0:00	0	0:00	0:00
EP	H146	3:16	21	0:16	0:28
EQ	H147	1:32	16	0:09	0:20
ER	H148	8:34	55	0:15	1:35
ES	H149	1:30	15	0:10	0:16
ET	H150	0:00	0	0:00	0:00
EU	H151	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: 6778 Moanmore Lower Only Worst Case

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
EV	H152	3:19	22	0:15	0:25
EW	H153	0:00	0	0:00	0:00
EX	H154	3:01	20	0:15	0:25
EY	H155	0:00	0	0:00	0:00
EZ	H156	0:00	0	0:00	0:00
FA	H157	0:00	0	0:00	0:00
FB	H158	0:00	0	0:00	0:00
FC	H159	0:00	0	0:00	0:00
FD	H160	0:00	0	0:00	0:00
FE	H161	0:00	0	0:00	0:00
FF	H162	0:00	0	0:00	0:00
FG	H163	0:00	0	0:00	0:00
FH	H164	0:00	0	0:00	0:00
FI	H165	0:00	0	0:00	0:00
FJ	H166	0:00	0	0:00	0:00
FK	H167	0:00	0	0:00	0:00
FL	H168	0:00	0	0:00	0:00
FM	H169	0:00	0	0:00	0:00
FN	H170	0:00	0	0:00	0:00
FO	H171	0:00	0	0:00	0:00
FP	H172	0:00	0	0:00	0:00
FQ	H173	0:00	0	0:00	0:00
FR	H174	0:00	0	0:00	0:00
FS	H175	0:00	0	0:00	0:00
FT	H176	0:00	0	0:00	0:00
FU	H177	0:00	0	0:00	0:00
FV	H178	0:00	0	0:00	0:00
FW	H179	0:00	0	0:00	0:00
FX	H180	0:00	0	0:00	0:00
FY	H181	0:00	0	0:00	0:00
FZ	H182	0:00	0	0:00	0:00
GA	H183	0:00	0	0:00	0:00

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	Moanmore Lower T1	502:53	71:28
2	Moanmore Lower T2	278:41	39:53
3	Moanmore Lower T3	387:51	62:38

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

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SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** A - H1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June		July		August		September	October	November	December
1	08:50	08:22	07:27	07:15	06:08		05:22		20:30 (3)	05:18	20:36 (3)	05:56	20:45 (2)	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:51	48	21:18 (3)	22:06	55	21:31 (3)	21:33	18	21:03 (2)	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06		05:21		20:30 (3)	05:19		20:36 (3)	05:58		20:45 (2)	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	49	21:19 (3)	22:05	56	21:32 (3)	21:31	15	21:00 (2)	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05		05:20		20:31 (3)	05:20		20:36 (3)	05:59		20:45 (2)	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08		21:54	50	21:21 (3)	22:05	54	21:30 (3)	21:29	14	20:59 (2)	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03		20:39 (2)	05:19	20:30 (3)	05:21		20:36 (3)	06:01		20:45 (2)	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	1	20:40 (2)	21:55	51	21:21 (3)	22:05	54	21:30 (3)	21:27	12	20:57 (2)	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01		20:38 (2)	05:19	20:30 (3)	05:21		20:37 (3)	06:03		20:46 (2)	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	3	20:41 (2)	21:56	52	21:22 (3)	22:04	53	21:30 (3)	21:26	10	20:56 (2)	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59		20:36 (2)	05:18	20:31 (3)	05:22		20:37 (3)	06:04		20:46 (2)	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	7	20:43 (2)	21:57	52	21:23 (3)	22:03	53	21:30 (3)	21:24	8	20:54 (2)	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		20:36 (2)	05:17	20:30 (3)	05:23		20:37 (3)	06:06		20:47 (2)	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	9	20:45 (2)	21:58	54	21:24 (3)	22:03	52	21:29 (3)	21:22	6	20:53 (2)	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		20:35 (2)	05:17	20:31 (3)	05:24		20:38 (3)	06:07		20:47 (2)	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	11	20:46 (2)	21:59	54	21:25 (3)	22:02	51	21:29 (3)	21:20	3	20:50 (2)	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53		20:35 (2)	05:16	20:31 (3)	05:25		20:37 (3)	06:09				07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	12	20:47 (2)	22:00	55	21:26 (3)	22:01	50	21:27 (3)	21:18			20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52		20:35 (2)	05:16	20:31 (3)	05:26		20:37 (3)	06:11				07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	15	20:50 (2)	22:00	55	21:26 (3)	22:01	50	21:27 (3)	21:16			20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50		20:34 (2)	05:15	20:31 (3)	05:27		20:38 (3)	06:12				07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	17	20:51 (2)	22:01	56	21:27 (3)	22:00	48	21:26 (3)	21:14			20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48		20:34 (2)	05:15	20:32 (3)	05:28		20:39 (3)	06:14				07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	19	20:53 (2)	22:02	56	21:28 (3)	21:59	47	21:26 (3)	21:12			20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46		20:34 (2)	05:15	20:31 (3)	05:30		20:39 (3)	06:16				07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	20	20:54 (2)	22:03	57	21:28 (3)	21:58	46	21:25 (3)	21:10			20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45		20:33 (2)	05:14	20:31 (3)	05:31		20:39 (3)	06:17				07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22	20:55 (2)	22:03	58	21:29 (3)	21:57	45	21:24 (3)	21:08			19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43		20:34 (2)	05:14	20:32 (3)	05:32		20:40 (3)	06:19				07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	23	20:57 (2)	22:04	57	21:29 (3)	21:56	43	21:23 (3)	21:06			19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42		20:34 (2)	05:14	20:32 (3)	05:33		20:40 (3)	06:21				07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	24	20:58 (2)	22:04	58	21:30 (3)	21:55	42	21:22 (3)	21:04			19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40		20:34 (2)	05:14	20:32 (3)	05:34		20:40 (3)	06:22				07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	25	20:59 (2)	22:05	58	21:30 (3)	21:54	41	21:21 (3)	21:02			19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39		20:35 (2)	05:14	20:32 (3)	05:36		20:40 (3)	06:24				07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:41	21:32	26	21:01 (2)	22:05	59	21:31 (3)	21:53	40	21:20 (3)	21:00			19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37		20:35 (2)	05:14	20:33 (3)	05:37		20:42 (3)	06:26				07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	28	21:03 (2)	22:06	58	21:31 (3)	21:52	38	21:20 (3)	20:58			19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36		20:33 (3)	05:14	20:33 (3)	05:38		20:42 (3)	06:27				07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	30	21:03 (2)	22:06	58	21:31 (3)	21:50	36	21:18 (3)	20:56			19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34		20:33 (3)	05:14	20:34 (3)	05:40		20:42 (3)	06:29				07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	32	21:05 (3)	22:06	58	21:32 (3)	21:49	35	21:17 (3)	20:53			19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33		20:33 (3)	05:14	20:34 (3)	05:41		20:42 (3)	06:31				07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	34	21:07 (3)	22:06	58	21:32 (3)	21:48	33	21:15 (3)	20:51			19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32		20:32 (3)	05:15	20:34 (3)	05:43		20:44 (3)	06:32				07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	36	21:08 (3)	22:06	58	21:32 (3)	21:46	31	21:15 (2)	20:49			19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30		20:32 (3)	05:15	20:33 (3)	05:44		20:44 (3)	06:34				07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	37	21:09 (3)	22:07	59	21:32 (3)	21:45	29	21:13 (2)	20:47			19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29		20:31 (3)	05:15	20:34 (3)	05:45		20:45 (2)	06:36				07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	39	21:10 (3)	22:07	58	21:32 (3)	21:44	28	21:13 (2)	20:45			19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28		20:31 (3)	05:16	20:34 (3)	05:47		20:45 (2)	06:38				07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	40	21:11 (3)	22:07	58	21:32 (3)	21:42	26	21:11 (2)	20:42			19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27		20:31 (3)	05:16	20:35 (3)	05:48		20:44 (2)	06:39				07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	41	21:12 (3)	22:07	57	21:32 (3)	21:41	25	21:09 (2)	20:40			19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:15	05:26		20:30 (3)	05:17	20:35 (3)	05:50		20:45 (2)	06:41				07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	43	21:13 (3)	22:06	57	21:32 (3)	21:39	23	21:08 (2)	20:38			19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25		20:31 (3)	05:17	20:35 (3)	05:51		20:44 (2)	06:43				07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	44	21:15 (3)	22:06	57	21:32 (3)	21:37	22	21:06 (2)	20:36			19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24		20:31 (3)	05:18	20:35 (3)	05:53		20:45 (2)	06:44				07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	45	21:16 (3)	22:06	56	21:31 (3)	21:36	20	21:05 (2)	20:33			19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		20:31 (3)				05:55		20:44 (2)	06:46				07:32		08:50
	17:21		20:10		21:50	46	21:17 (3)				21:34	20	21:04 (2)	20:31				17:12		16:32
Potential sun hours	256	276	367	418	488		503		506		456		381	330	263	240	
Total, worst case						729		1671		1246		86					
Sun reduction						0.37		0.30		0.26		0.30					
Oper. time red.						1.00		1.00		1.00		1.00					
Wind dir. red.						0.66		0.66		0.66		0.67					
Total reduction						0.24		0.20		0.18		0.20					
Total, real						178		329		219		17					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April	May	June
1	08:50		15:00 (3)	08:22		07:27	16:40 (1)	07:15	06:08	05:22
	16:34	41	15:41 (3)	17:23		18:16	47	17:27 (1)	20:12	21:04	21:52
2	08:50		15:00 (3)	08:21		07:25	16:41 (1)	07:13	06:06	05:21
	16:35	41	15:41 (3)	17:25		18:18	46	17:27 (1)	20:13	21:06	21:53
3	08:50		15:00 (3)	08:19		07:23	16:43 (1)	07:10	06:05	05:20
	16:36	41	15:41 (3)	17:26		18:20	43	17:26 (1)	20:15	21:08	21:54
4	08:50		15:01 (3)	08:17	16:53 (1)	07:20	16:43 (1)	07:08	06:03	05:19
	16:37	41	15:42 (3)	17:28	5	16:58 (1)	18:21	41	17:24 (1)	20:17	21:09	21:55
5	08:50		15:01 (3)	08:16		16:51 (1)	07:18	16:45 (1)	07:06	06:01	05:18
	16:38	41	15:42 (3)	17:30	9	17:00 (1)	18:23	38	17:23 (1)	20:19	21:11	21:56
6	08:49		15:03 (3)	08:14		16:49 (1)	07:16	16:46 (1)	07:03	05:59	05:18
	16:39	39	15:42 (3)	17:32	13	17:02 (2)	18:25	35	17:21 (1)	20:20	21:13	21:57
7	08:49		15:03 (3)	08:12		16:47 (1)	07:14	16:48 (1)	07:01	05:57	05:17
	16:41	39	15:42 (3)	17:34	17	17:04 (2)	18:27	30	17:18 (1)	20:22	21:14	21:58
8	08:48		15:03 (3)	08:10		16:46 (1)	07:11	16:50 (1)	06:59	05:55	05:17
	16:42	39	15:42 (3)	17:36	20	17:06 (2)	18:29	26	17:16 (1)	20:24	21:16	21:59
9	08:48		15:05 (3)	08:08		16:45 (1)	07:09	16:53 (1)	06:56	05:53	05:16
	16:43	38	15:43 (3)	17:38	23	17:08 (2)	18:31	20	17:13 (1)	20:26	21:18	22:00
10	08:47		15:05 (3)	08:07		16:44 (1)	07:07	16:58 (1)	06:54	05:52	05:16
	16:45	38	15:43 (3)	17:40	26	17:10 (2)	18:32	9	17:07 (1)	20:27	21:19	22:00
11	08:47		15:06 (3)	08:05		16:43 (1)	07:04		06:52	05:50	05:15
	16:46	37	15:43 (3)	17:42	30	17:13 (2)	18:34		20:29	21:21	22:01
12	08:46		15:06 (3)	08:03		16:42 (1)	07:02		06:49	05:48	05:15
	16:48	37	15:43 (3)	17:44	33	17:15 (2)	18:36		20:31	21:23	22:02
13	08:45		15:07 (3)	08:01		16:42 (1)	07:00		06:47	05:46	05:15
	16:49	35	15:42 (3)	17:46	35	17:17 (2)	18:38		20:33	21:24	22:03
14	08:44		15:08 (3)	07:59		16:41 (1)	06:57		06:45	05:45	05:14
	16:51	34	15:42 (3)	17:48	38	17:19 (2)	18:40		20:34	21:26	22:03
15	08:44		15:09 (3)	07:57		16:40 (1)	06:55		06:43	05:43	05:14
	16:53	33	15:42 (3)	17:49	41	17:21 (2)	18:41		20:36	21:28	22:04
16	08:43		15:10 (3)	07:55		16:40 (1)	06:53		06:40	05:42	05:14
	16:54	32	15:42 (3)	17:51	43	17:23 (2)	18:43		20:38	21:29	22:04
17	08:42		15:12 (3)	07:53		16:40 (1)	06:50		06:38	05:40	05:14
	16:56	29	15:41 (3)	17:53	45	17:25 (2)	18:45		20:40	21:31	22:05
18	08:41		15:13 (3)	07:51		16:40 (1)	06:48		06:36	05:39	05:14
	16:57	28	15:41 (3)	17:55	48	17:28 (1)	18:47		20:41	21:32	22:05
19	08:40		15:15 (3)	07:49		16:38 (1)	06:46		06:34	05:37	05:14
	16:59	26	15:41 (3)	17:57	51	17:29 (1)	18:49		20:43	21:34	22:06
20	08:39		15:16 (3)	07:47		16:38 (1)	06:43		06:31	05:36	05:14
	17:01	23	15:39 (3)	17:59	53	17:31 (1)	18:50		20:45	21:35	22:06
21	08:37		15:18 (3)	07:45		16:38 (1)	06:41		06:29	05:34	05:14
	17:03	20	15:38 (3)	18:01	53	17:31 (1)	18:52		20:47	21:37	22:06
22	08:36		15:21 (3)	07:42		16:39 (1)	06:39		06:27	05:33	05:14
	17:04	16	15:37 (3)	18:03	52	17:31 (1)	18:54		20:48	21:38	22:06
23	08:35		15:24 (3)	07:40		16:39 (1)	06:36		06:25	05:32	05:15
	17:06	9	15:33 (3)	18:05	52	17:31 (1)	18:56		20:50	21:40	22:07
24	08:34			07:38		16:38 (1)	06:34		06:23	05:30	05:15
	17:08			18:07	52	17:30 (1)	18:57		20:52	21:41	22:07
25	08:32			07:36		16:39 (1)	06:31		06:21	05:29	05:15
	17:10			18:08	51	17:30 (1)	18:59		20:54	21:43	22:07
26	08:31			07:34		16:39 (1)	06:29		06:19	05:28	05:16
	17:12			18:10	51	17:30 (1)	19:01		20:55	21:44	22:07
27	08:30			07:32		16:40 (1)	06:27		06:17	05:27	05:16
	17:13			18:12	49	17:29 (1)	19:03		20:57	21:45	22:07
28	08:28			07:29		16:40 (1)	06:24		06:14	05:26	05:17
	17:15			18:14	48	17:28 (1)	19:05		20:59	21:47	22:06
29	08:27						07:22		06:12	05:25	05:17
	17:17						20:06		21:01	21:48	22:06
30	08:25						07:20		06:10	05:24	05:18
	17:19						20:08		21:02	21:49	22:06
31	08:24						07:17			05:23	
	17:21						20:10			21:50	
Potential sun hours	256			276			367		418	489	503
Total, worst case		757			938			335			
Sun reduction		0.16			0.21			0.24			
Oper. time red.		1.00			1.00			1.00			
Wind dir. red.		0.60			0.65			0.65			
Total reduction		0.10			0.13			0.16			
Total, real		72			125			53			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October			November			December		
1	05:18		05:56		06:48		07:38			07:34		16:14 (1)	08:26		14:48 (3)
	22:06		21:33		20:29		19:18			17:10	26	16:40 (2)	16:28	37	15:25 (3)
2	05:19		05:58		06:49		07:40			07:36		16:15 (1)	08:28		14:48 (3)
	22:05		21:31		20:27		19:15			17:08	23	16:38 (2)	16:27	38	15:26 (3)
3	05:20		05:59		06:51		07:42			07:37		16:16 (1)	08:29		14:48 (3)
	22:05		21:29		20:24		19:13			17:06	20	16:36 (2)	16:27	38	15:26 (3)
4	05:21		06:01		06:53		07:43		17:32 (1)	07:39		16:17 (1)	08:30		14:48 (3)
	22:05		21:27		20:22		19:11	16	17:48 (1)	17:04	17	16:34 (2)	16:26	39	15:27 (3)
5	05:21		06:03		06:54		07:45		17:28 (1)	07:41		16:19 (1)	08:32		14:48 (3)
	22:04		21:26		20:20		19:08	24	17:52 (1)	17:02	13	16:32 (2)	16:26	39	15:27 (3)
6	05:22		06:04		06:56		07:47		17:26 (1)	07:43		16:21 (1)	08:33		14:49 (3)
	22:04		21:24		20:17		19:06	28	17:54 (1)	17:01	9	16:30 (1)	16:25	40	15:29 (3)
7	05:23		06:06		06:58		07:49		17:22 (1)	07:45		16:23 (1)	08:34		14:49 (3)
	22:03		21:22		20:15		19:04	33	17:55 (1)	16:59	5	16:28 (1)	16:25	40	15:29 (3)
8	05:24		06:07		06:59		07:50		17:20 (1)	07:47			08:36		14:49 (3)
	22:02		21:20		20:12		19:01	37	17:57 (1)	16:57			16:24	40	15:29 (3)
9	05:25		06:09		07:01		07:52		17:19 (1)	07:48			08:37		14:50 (3)
	22:02		21:18		20:10		18:59	39	17:58 (1)	16:56			16:24	40	15:30 (3)
10	05:26		06:11		07:03		07:54		17:17 (1)	07:50			08:38		14:50 (3)
	22:01		21:16		20:08		18:57	42	17:59 (1)	16:54			16:24	41	15:31 (3)
11	05:27		06:12		07:04		07:56		17:16 (1)	07:52			08:39		14:50 (3)
	22:00		21:14		20:05		18:54	44	18:00 (1)	16:52			16:24	41	15:31 (3)
12	05:28		06:14		07:06		07:57		17:14 (1)	07:54			08:40		14:50 (3)
	21:59		21:12		20:03		18:52	46	18:00 (1)	16:51			16:23	41	15:31 (3)
13	05:29		06:16		07:08		07:59		17:13 (1)	07:56			08:41		14:50 (3)
	21:58		21:10		20:01		18:50	48	18:01 (1)	16:49			16:23	42	15:32 (3)
14	05:31		06:17		07:09		08:01		17:12 (1)	07:58			08:42		14:51 (3)
	21:57		21:08		19:58		18:48	49	18:01 (1)	16:48			16:23	41	15:32 (3)
15	05:32		06:19		07:11		08:03		17:12 (1)	07:59			08:43		14:51 (3)
	21:56		21:06		19:56		18:45	50	18:02 (1)	16:46			16:23	42	15:33 (3)
16	05:33		06:21		07:13		08:04		17:11 (1)	08:01			08:44		14:52 (3)
	21:55		21:04		19:53		18:43	51	18:02 (1)	16:45			16:24	42	15:34 (3)
17	05:34		06:22		07:14		08:06		17:11 (1)	08:03			08:45		14:52 (3)
	21:54		21:02		19:51		18:41	51	18:02 (1)	16:43			16:24	42	15:34 (3)
18	05:36		06:24		07:16		08:08		17:10 (1)	08:05			08:46		14:52 (3)
	21:53		21:00		19:49		18:39	52	18:02 (1)	16:42			16:24	42	15:34 (3)
19	05:37		06:26		07:18		08:10		17:10 (1)	08:07		14:59 (3)	08:46		14:53 (3)
	21:52		20:58		19:46		18:37	53	18:03 (1)	16:40	9	15:08 (3)	16:24	42	15:35 (3)
20	05:38		06:27		07:19		08:12		17:09 (1)	08:08		14:56 (3)	08:47		14:54 (3)
	21:50		20:56		19:44		18:34	53	18:02 (1)	16:39	16	15:12 (3)	16:25	42	15:36 (3)
21	05:40		06:29		07:21		08:13		17:09 (1)	08:10		14:54 (3)	08:48		14:54 (3)
	21:49		20:53		19:42		18:32	52	18:01 (1)	16:38	20	15:14 (3)	16:25	42	15:36 (3)
22	05:41		06:31		07:23		08:15		17:09 (1)	08:12		14:53 (3)	08:48		14:55 (3)
	21:48		20:51		19:39		18:30	52	18:01 (1)	16:37	23	15:16 (3)	16:25	42	15:37 (3)
23	05:43		06:32		07:25		08:17		17:09 (1)	08:13		14:51 (3)	08:49		14:55 (3)
	21:46		20:49		19:37		18:28	50	17:59 (1)	16:36	26	15:17 (3)	16:26	42	15:37 (3)
24	05:44		06:34		07:26		08:19		17:09 (1)	08:15		14:50 (3)	08:49		14:55 (3)
	21:45		20:47		19:34		18:26	47	17:56 (2)	16:34	28	15:18 (3)	16:27	42	15:37 (3)
25	05:45		06:36		07:28		07:21		16:09 (1)	08:17		14:50 (3)	08:49		14:56 (3)
	21:44		20:45		19:32		17:24	45	16:54 (2)	16:33	30	15:20 (3)	16:27	42	15:38 (3)
26	05:47		06:37		07:30		07:23		16:10 (1)	08:18		14:49 (3)	08:50		14:56 (3)
	21:42		20:42		19:30		17:22	42	16:52 (2)	16:32	32	15:21 (3)	16:28	42	15:38 (3)
27	05:48		06:39		07:31		07:24		16:10 (1)	08:20		14:49 (3)	08:50		14:57 (3)
	21:41		20:40		19:27		17:20	40	16:50 (2)	16:31	33	15:22 (3)	16:29	42	15:39 (3)
28	05:50		06:41		07:33		07:26		16:11 (1)	08:22		14:48 (3)	08:50		14:57 (3)
	21:39		20:38		19:25		17:18	37	16:48 (2)	16:31	34	15:22 (3)	16:29	42	15:39 (3)
29	05:51		06:43		07:35		07:28		16:11 (1)	08:23		14:48 (3)	08:50		14:58 (3)
	21:38		20:36		19:22		17:16	35	16:46 (2)	16:30	35	15:23 (3)	16:30	41	15:39 (3)
30	05:53		06:44		07:36		07:30		16:12 (1)	08:25		14:48 (3)	08:50		14:58 (3)
	21:36		20:33		19:20		17:14	32	16:44 (2)	16:29	37	15:25 (3)	16:31	42	15:40 (3)
31	05:55		06:46				07:32		16:13 (1)				08:50		14:59 (3)
	21:34		20:31				17:12	29	16:42 (2)				16:32	41	15:40 (3)
Potential sun hours	506		456		381		330			263			240		
Total, worst case								1177			436			1269	
Sun reduction								0.24			0.19			0.14	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.65			0.62			0.60	
Total reduction								0.15			0.11			0.08	
Total, real								181			50			105	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** C - H3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** D - H4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April		May		June
1	08:50	08:22		07:27		17:06 (3)	07:15	19:13 (2)	06:08	19:42 (1)	05:22
	16:34	17:23		18:16	43	17:49 (3)	20:12	24 19:37 (2)	21:04	48 20:30 (1)	21:52
2	08:50	08:21		07:25		17:06 (3)	07:13	19:14 (2)	06:06	19:43 (1)	05:21
	16:35	17:25		18:18	45	17:51 (3)	20:13	22 19:36 (2)	21:06	47 20:30 (1)	21:53
3	08:50	08:19		07:23		17:06 (3)	07:10	19:15 (2)	06:05	19:43 (1)	05:20
	16:36	17:27		18:20	48	17:54 (3)	20:15	18 19:33 (2)	21:08	47 20:30 (1)	21:54
4	08:50	08:17		07:20		17:04 (3)	07:08	19:18 (2)	06:03	19:43 (1)	05:19
	16:37	17:28		18:21	51	17:55 (3)	20:17	13 19:31 (2)	21:09	46 20:29 (1)	21:55
5	08:50	08:16		07:18		17:04 (3)	07:06	19:24 (2)	06:01	19:43 (1)	05:18
	16:38	17:30		18:23	52	17:56 (3)	20:19	1 19:25 (2)	21:11	45 20:28 (1)	21:56
6	08:49	08:14		07:16		17:04 (3)	07:03		05:59	19:43 (1)	05:18
	16:39	17:32		18:25	52	17:56 (3)	20:20		21:13	45 20:28 (1)	21:57
7	08:49	08:12		07:14		17:04 (3)	07:01		05:57	19:45 (1)	05:17
	16:41	17:34		18:27	51	17:55 (3)	20:22		21:14	43 20:28 (1)	21:58
8	08:48	08:10		07:11		17:04 (3)	06:59		05:55	19:45 (1)	05:17
	16:42	17:36		18:29	51	17:55 (3)	20:24		21:16	42 20:27 (1)	21:59
9	08:48	08:08		07:09		17:04 (3)	06:56		05:53	19:45 (1)	05:16
	16:43	17:38		18:31	51	17:55 (3)	20:26		21:18	40 20:25 (1)	22:00
10	08:47	08:07		07:07		17:04 (3)	06:54		05:52	19:47 (1)	05:16
	16:45	17:40		18:32	49	17:53 (3)	20:27		21:19	38 20:25 (1)	22:00
11	08:47	08:05		07:04		17:04 (3)	06:52		05:50	19:47 (1)	05:15
	16:46	17:42		18:34	49	17:53 (3)	20:29		21:21	37 20:24 (1)	22:01
12	08:46	08:03		07:02		17:04 (3)	06:49	20:00 (1)	05:48	19:48 (1)	05:15
	16:48	17:44		18:36	48	17:52 (3)	20:31	4 20:04 (1)	21:23	35 20:23 (1)	22:02
13	08:45	08:01		07:00		17:05 (3)	06:47	19:56 (1)	05:46	19:49 (1)	05:15
	16:49	17:46		18:38	46	17:51 (3)	20:33	9 20:05 (1)	21:24	33 20:22 (1)	22:03
14	08:44	07:59		06:57		17:06 (3)	06:45	19:54 (1)	05:45	19:50 (1)	05:14
	16:51	17:48		18:40	44	17:50 (3)	20:34	13 20:07 (1)	21:26	30 20:20 (1)	22:03
15	08:44	07:57		06:55		17:06 (3)	06:43	19:53 (1)	05:43	19:52 (1)	05:14
	16:53	17:49		18:41	42	17:48 (3)	20:36	16 20:09 (1)	21:28	28 20:20 (1)	22:04
16	08:43	07:55		06:53		17:08 (3)	06:40	19:51 (1)	05:42	19:54 (1)	05:14
	16:54	17:51		18:43	39	17:47 (3)	20:38	20 20:11 (1)	21:29	24 20:18 (1)	22:04
17	08:42	07:53		06:50		17:09 (3)	06:38	19:50 (1)	05:40	19:55 (1)	05:14
	16:56	17:53		18:45	37	17:46 (3)	20:40	23 20:13 (1)	21:31	21 20:16 (1)	22:05
18	08:41	07:51	17:24 (3)	06:48		17:10 (3)	06:36	19:49 (1)	05:39	19:58 (1)	05:14
	16:57	17:55	4 17:28 (3)	18:47	34	17:44 (3)	20:41	25 20:14 (1)	21:32	16 20:14 (1)	22:05
19	08:40	07:49	17:19 (3)	06:46		17:12 (3)	06:34	19:47 (1)	05:37	20:01 (1)	05:14
	16:59	17:57	10 17:29 (3)	18:49	34	18:23 (2)	20:43	28 20:15 (1)	21:34	11 20:12 (1)	22:06
20	08:39	07:47	17:17 (3)	06:43		17:14 (3)	06:31	19:46 (1)	05:36		05:14
	17:01	17:59	14 17:31 (3)	18:50	32	18:24 (2)	20:45	31 20:17 (1)	21:35		22:06
21	08:37	07:45	17:15 (3)	06:41		17:17 (3)	06:29	19:45 (1)	05:34		05:14
	17:03	18:01	18 17:33 (3)	18:52	29	18:26 (2)	20:47	34 20:19 (1)	21:37		22:06
22	08:36	07:42	17:14 (3)	06:39		17:23 (3)	06:27	19:44 (1)	05:33		05:14
	17:04	18:03	21 17:35 (3)	18:54	20	18:28 (2)	20:48	36 20:20 (1)	21:38		22:06
23	08:35	07:40	17:13 (3)	06:36		18:13 (2)	06:25	19:44 (1)	05:32		05:15
	17:06	18:05	25 17:38 (3)	18:56	17	18:30 (2)	20:50	38 20:22 (1)	21:40		22:06
24	08:34	07:38	17:10 (3)	06:34		18:13 (2)	06:23	19:43 (1)	05:30		05:15
	17:08	18:07	29 17:39 (3)	18:57	19	18:32 (2)	20:52	41 20:24 (1)	21:41		22:07
25	08:32	07:36	17:10 (3)	06:31		18:12 (2)	06:21	19:43 (1)	05:29		05:15
	17:10	18:08	31 17:41 (3)	18:59	21	18:33 (2)	20:54	42 20:25 (1)	21:43		22:07
26	08:31	07:34	17:09 (3)	06:29		18:12 (2)	06:19	19:43 (1)	05:28		05:16
	17:12	18:10	34 17:43 (3)	19:01	23	18:35 (2)	20:55	44 20:27 (1)	21:44		22:07
27	08:30	07:32	17:08 (3)	06:27		18:12 (2)	06:17	19:42 (1)	05:27		05:16
	17:13	18:12	38 17:46 (3)	19:03	25	18:37 (2)	20:57	47 20:29 (1)	21:45		22:07
28	08:28	07:29	17:06 (3)	06:24		18:11 (2)	06:14	19:42 (1)	05:26		05:17
	17:15	18:14	41 17:47 (3)	19:05	27	18:38 (2)	20:59	48 20:30 (1)	21:47		22:06
29	08:27			07:22		19:11 (2)	06:12	19:42 (1)	05:25		05:17
	17:17			20:06	29	19:40 (2)	21:01	49 20:31 (1)	21:48		22:06
30	08:25			07:20		19:12 (2)	06:10	19:42 (1)	05:24		05:18
	17:19			20:08	28	19:40 (2)	21:02	48 20:30 (1)	21:49		22:06
31	08:24			07:17		19:12 (2)			05:23		
	17:21			20:10	26	19:38 (2)			21:50		
Potential sun hours	256	276		367			418		489		503
Total, worst case			265		1162			674		676	
Sun reduction			0.21		0.24			0.35		0.37	
Oper. time red.			1.00		1.00			1.00		1.00	
Wind dir. red.			0.66		0.66			0.68		0.67	
Total reduction			0.14		0.16			0.24		0.25	
Total, real			36		188			161		168	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** D - H4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October		November	December
1	05:18		05:56		19:59 (1)	06:48		07:38	17:44 (3)	07:34	08:26
	22:06		21:33	35	20:34 (1)	20:29		19:18	47	18:31 (3)	17:10	16:28
2	05:19		05:58		19:57 (1)	06:49		07:40		17:43 (3)	07:36	08:28
	22:05		21:31	38	20:35 (1)	20:26		19:15	48	18:31 (3)	17:08	16:27
3	05:20		05:59		19:56 (1)	06:51		07:42		17:42 (3)	07:37	08:29
	22:05		21:29	39	20:35 (1)	20:24		19:13	49	18:31 (3)	17:06	16:27
4	05:21		06:01		19:55 (1)	06:53		07:43		17:41 (3)	07:39	08:30
	22:05		21:27	41	20:36 (1)	20:22		19:11	50	18:31 (3)	17:04	16:26
5	05:21		06:03		19:54 (1)	06:54		07:45		17:41 (3)	07:41	08:32
	22:04		21:26	42	20:36 (1)	20:20		19:08	51	18:32 (3)	17:02	16:26
6	05:22		06:04		19:54 (1)	06:56		07:47		17:41 (3)	07:43	08:33
	22:03		21:24	43	20:37 (1)	20:17		19:06	51	18:32 (3)	17:01	16:25
7	05:23		06:06		19:54 (1)	06:58		07:49		17:40 (3)	07:45	08:34
	22:03		21:22	44	20:38 (1)	20:15		19:04	51	18:31 (3)	16:59	16:25
8	05:24		06:07		19:53 (1)	06:59	19:12 (2)	07:50		17:39 (3)	07:47	08:36
	22:02		21:20	45	20:38 (1)	20:12	13	19:25 (2)	19:01	52	18:31 (3)	16:57	16:24
9	05:25		06:09		19:52 (1)	07:01	19:10 (2)	07:52		17:39 (3)	07:48	08:37
	22:01		21:18	47	20:39 (1)	20:10	17	19:27 (2)	18:59	52	18:31 (3)	16:56	16:24
10	05:26		06:11		19:51 (1)	07:03	19:08 (2)	07:54		17:40 (3)	07:50	08:38
	22:01		21:16	47	20:38 (1)	20:08	21	19:29 (2)	18:57	49	18:29 (3)	16:54	16:24
11	05:27		06:12		19:51 (1)	07:04	19:05 (2)	07:56		17:40 (3)	07:52	08:39
	22:00		21:14	48	20:39 (1)	20:05	25	19:30 (2)	18:54	47	18:27 (3)	16:52	16:24
12	05:28		06:14		19:50 (1)	07:06	19:04 (2)	07:57		17:39 (3)	07:54	08:40
	21:59		21:12	49	20:39 (1)	20:03	27	19:31 (2)	18:52	44	18:23 (3)	16:51	16:23
13	05:30		06:16		19:50 (1)	07:08	19:03 (2)	07:59		17:39 (3)	07:56	08:41
	21:58		21:10	49	20:39 (1)	20:01	27	19:30 (2)	18:50	42	18:21 (3)	16:49	16:23
14	05:31		06:17		19:50 (1)	07:09	19:02 (2)	08:01		17:40 (3)	07:58	08:42
	21:57		21:08	48	20:38 (1)	19:58	29	19:31 (2)	18:48	39	18:19 (3)	16:48	16:23
15	05:32		06:19		19:50 (1)	07:11	19:01 (2)	08:03		17:41 (3)	07:59	08:43
	21:56		21:06	47	20:37 (1)	19:56	28	19:29 (2)	18:45	36	18:17 (3)	16:46	16:23
16	05:33		06:21		19:50 (1)	07:13	19:00 (2)	08:04		17:41 (3)	08:01	08:44
	21:55		21:04	46	20:36 (1)	19:53	26	19:26 (2)	18:43	34	18:15 (3)	16:45	16:24
17	05:34		06:22		19:49 (1)	07:14	19:00 (2)	08:06		17:42 (3)	08:03	08:45
	21:54		21:02	44	20:33 (1)	19:51	24	19:24 (2)	18:41	31	18:13 (3)	16:43	16:24
18	05:36		06:24		19:50 (1)	07:16	19:00 (2)	08:08		17:43 (3)	08:05	08:46
	21:53		21:00	42	20:32 (1)	19:49	22	19:22 (2)	18:39	27	18:10 (3)	16:42	16:24
19	05:37		06:26		19:49 (1)	07:18	18:59 (2)	08:10		17:43 (3)	08:07	08:46
	21:52		20:58	40	20:29 (1)	19:46	20	19:19 (2)	18:37	24	18:07 (3)	16:40	16:24
20	05:38		06:27		19:50 (1)	07:19	19:00 (2)	08:12		17:45 (3)	08:08	08:47
	21:50		20:56	37	20:27 (1)	19:44	17	19:17 (2)	18:34	20	18:05 (3)	16:39	16:25
21	05:40		06:29		19:49 (1)	07:21	19:00 (2)	08:13		17:46 (3)	08:10	08:47
	21:49		20:53	36	20:25 (1)	19:42	14	19:14 (2)	18:32	17	18:03 (3)	16:38	16:25
22	05:41		06:31		19:50 (1)	07:23	18:03 (3)	08:15		17:48 (3)	08:12	08:48
	21:48		20:51	33	20:23 (1)	19:39	27	19:11 (2)	18:30	13	18:01 (3)	16:37	16:25
23	05:43		06:32		19:51 (1)	07:25	17:59 (3)	08:17		17:51 (3)	08:13	08:49
	21:46		20:49	30	20:21 (1)	19:37	32	19:09 (2)	18:28	8	17:59 (3)	16:36	16:26
24	05:44	20:14 (1)	06:34		19:51 (1)	07:26	17:56 (3)	08:19		17:54 (3)	08:15	08:49
	21:45	4 20:18 (1)	20:47	28	20:19 (1)	19:34	34	19:07 (2)	18:26	2	17:56 (3)	16:35	16:27
25	05:45	20:10 (1)	06:36		19:52 (1)	07:28	17:53 (3)	07:21			08:17	08:49
	21:44	14 20:24 (1)	20:45	25	20:17 (1)	19:32	34	19:04 (2)	17:24			16:33	16:27
26	05:47	20:07 (1)	06:37		19:52 (1)	07:30	17:51 (3)	07:23				08:18	08:50
	21:42	19 20:26 (1)	20:42	22	20:14 (1)	19:30	36	18:27 (3)	17:22			16:32	16:28
27	05:48	20:05 (1)	06:39		19:53 (1)	07:31	17:50 (3)	07:24				08:20	08:50
	21:41	22 20:27 (1)	20:40	19	20:12 (1)	19:27	39	18:29 (3)	17:20			16:31	16:29
28	05:50	20:04 (1)	06:41		19:55 (1)	07:33	17:48 (3)	07:26				08:22	08:50
	21:39	26 20:30 (1)	20:38	16	20:11 (1)	19:25	42	18:30 (3)	17:18			16:31	16:30
29	05:51	20:02 (1)	06:43		19:55 (1)	07:35	17:46 (3)	07:28				08:23	08:50
	21:38	28 20:30 (1)	20:36	13	20:08 (1)	19:22	44	18:30 (3)	17:16			16:30	16:30
30	05:53	20:01 (1)	06:44		19:57 (1)	07:36	17:45 (3)	07:30				08:25	08:50
	21:36	31 20:32 (1)	20:33	9	20:06 (1)	19:20	46	18:31 (3)	17:14			16:29	16:31
31	05:55	19:59 (1)	06:46		19:59 (1)				07:32				08:50
	21:34	34 20:33 (1)	20:31	4	20:03 (1)				17:12				16:32
Potential sun hours	506		456			381		330			263	240	
Total, worst case		178		1106			644		884				
Sun reduction		0.26		0.30			0.28		0.24				
Oper. time red.		1.00		1.00			1.00		1.00				
Wind dir. red.		0.67		0.67			0.67		0.66				
Total reduction		0.19		0.20			0.19		0.16				
Total, real		32		221			122		139				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June
1	08:50	08:22	07:27	17:30 (3)	07:15	19:20 (2)	06:08	19:54 (1)	05:22
	16:34	17:23	18:16 19	17:49 (3)	20:12 25	19:45 (2)	21:04 41	20:35 (1)	21:51
2	08:50	08:21	07:25	17:29 (3)	07:13	19:20 (2)	06:06	19:55 (1)	05:21
	16:35	17:25	18:18 22	17:51 (3)	20:13 27	19:47 (2)	21:06 42	20:37 (1)	21:53
3	08:50	08:19	07:23	17:28 (3)	07:10	19:20 (2)	06:05	19:55 (1)	05:20
	16:36	17:27	18:20 26	17:54 (3)	20:15 26	19:46 (2)	21:08 44	20:39 (1)	21:54
4	08:50	08:17	07:20	17:26 (3)	07:08	19:21 (2)	06:03	19:54 (1)	05:19
	16:37	17:28	18:21 29	17:55 (3)	20:17 25	19:46 (2)	21:09 46	20:40 (1)	21:55
5	08:50	08:15	07:18	17:25 (3)	07:06	19:22 (2)	06:01	19:54 (1)	05:18
	16:38	17:30	18:23 32	17:57 (3)	20:19 22	19:44 (2)	21:11 46	20:40 (1)	21:56
6	08:49	08:14	07:16	17:24 (3)	07:03	19:22 (2)	05:59	19:54 (1)	05:18
	16:39	17:32	18:25 35	17:59 (3)	20:20 20	19:42 (2)	21:13 46	20:40 (1)	21:57
7	08:49	08:12	07:14	17:23 (3)	07:01	19:25 (2)	05:57	19:55 (1)	05:17
	16:41	17:34	18:27 37	18:00 (3)	20:22 15	19:40 (2)	21:14 45	20:40 (1)	21:58
8	08:48	08:10	07:11	17:22 (3)	06:59	19:28 (2)	05:55	19:55 (1)	05:17
	16:42	17:36	18:29 41	18:03 (3)	20:24 9	19:37 (2)	21:16 44	20:39 (1)	21:59
9	08:48	08:08	07:09	17:22 (3)	06:56		05:53	19:55 (1)	05:16
	16:43	17:38	18:31 43	18:05 (3)	20:26		21:18 44	20:39 (1)	22:00
10	08:47	08:07	07:07	17:21 (3)	06:54		05:52	19:56 (1)	05:16
	16:45	17:40	18:32 45	18:06 (3)	20:27		21:19 43	20:39 (1)	22:00
11	08:47	08:05	07:04	17:21 (3)	06:52		05:50	19:56 (1)	05:15
	16:46	17:42	18:34 47	18:08 (3)	20:29		21:21 42	20:38 (1)	22:01
12	08:46	08:03	07:02	17:20 (3)	06:49		05:48	19:56 (1)	05:15
	16:48	17:44	18:36 50	18:10 (3)	20:31		21:23 41	20:37 (1)	22:02
13	08:45	08:01	07:00	17:20 (3)	06:47		05:46	19:57 (1)	05:15
	16:49	17:46	18:38 50	18:10 (3)	20:33		21:24 40	20:37 (1)	22:03
14	08:44	07:59	06:57	17:20 (3)	06:45		05:45	19:58 (1)	05:14
	16:51	17:48	18:40 50	18:10 (3)	20:34		21:26 38	20:36 (1)	22:03
15	08:44	07:57	06:55	17:19 (3)	06:43		05:43	19:59 (1)	05:14
	16:53	17:49	18:41 50	18:09 (3)	20:36		21:28 36	20:35 (1)	22:04
16	08:43	07:55	06:53	17:20 (3)	06:40		05:42	20:00 (1)	05:14
	16:54	17:51	18:43 48	18:08 (3)	20:38		21:29 35	20:35 (1)	22:04
17	08:42	07:53	06:50	17:20 (3)	06:38	20:10 (1)	05:40	20:00 (1)	05:14
	16:56	17:53	18:45 48	18:08 (3)	20:40 3	20:13 (1)	21:31 34	20:34 (1)	22:05
18	08:41	07:51	06:48	17:20 (3)	06:36	20:08 (1)	05:39	20:02 (1)	05:14
	16:57	17:55	18:47 47	18:07 (3)	20:41 6	20:14 (1)	21:32 31	20:33 (1)	22:05
19	08:40	07:49	06:46	17:21 (3)	06:34	20:05 (1)	05:37	20:03 (1)	05:14
	16:59	17:57	18:49 45	18:06 (3)	20:43 10	20:15 (1)	21:34 29	20:32 (1)	22:06
20	08:39	07:47	06:43	17:21 (3)	06:31	20:03 (1)	05:36	20:04 (1)	05:14
	17:01	17:59	18:50 43	18:04 (3)	20:45 14	20:17 (1)	21:35 27	20:31 (1)	22:06
21	08:37	07:45	06:41	17:22 (3)	06:29	20:02 (1)	05:34	20:05 (1)	05:14
	17:03	18:01	18:52 42	18:04 (3)	20:47 17	20:19 (1)	21:37 25	20:30 (1)	22:06
22	08:36	07:42	06:39	17:23 (3)	06:27	20:01 (1)	05:33	20:07 (1)	05:14
	17:04	18:03	18:54 40	18:03 (3)	20:48 19	20:20 (1)	21:38 21	20:28 (1)	22:06
23	08:35	07:40	06:36	17:23 (3)	06:25	19:59 (1)	05:32	20:09 (1)	05:15
	17:06	18:05	18:56 41	18:30 (2)	20:50 23	20:22 (1)	21:40 18	20:27 (1)	22:06
24	08:34	07:38	06:34	17:25 (3)	06:23	19:59 (1)	05:30	20:11 (1)	05:15
	17:08	18:07	18:57 41	18:32 (2)	20:52 25	20:24 (1)	21:41 13	20:24 (1)	22:07
25	08:32	07:36	06:31	17:26 (3)	06:21	19:58 (1)	05:29	20:14 (1)	05:15
	17:10	18:08	18:59 40	18:33 (2)	20:54 27	20:25 (1)	21:43 7	20:21 (1)	22:07
26	08:31	07:34	17:37 (3)	06:29	17:28 (3)	06:19	19:57 (1)	05:28		05:16
	17:12	18:10 6	17:43 (3)	19:01 39	18:35 (2)	20:55 30	20:27 (1)	21:44		22:07
27	08:30	07:32	17:35 (3)	06:27	17:31 (3)	06:17	19:56 (1)	05:27		05:16
	17:13	18:12 11	17:46 (3)	19:03 35	18:37 (2)	20:57 33	20:29 (1)	21:45		22:07
28	08:28	07:29	17:32 (3)	06:24	17:35 (3)	06:14	19:56 (1)	05:26		05:17
	17:15	18:14 15	17:47 (3)	19:05 29	18:38 (2)	20:59 34	20:30 (1)	21:47		22:06
29	08:27			07:22	19:20 (2)	06:12	19:55 (1)	05:25		05:17
	17:17			20:06 20	19:40 (2)	21:01 37	20:32 (1)	21:48		22:06
30	08:25			07:20	19:20 (2)	06:10	19:55 (1)	05:24		05:18
	17:19			20:08 22	19:42 (2)	21:02 38	20:33 (1)	21:49		22:06
31	08:24			07:17	19:19 (2)			05:23		
	17:21			20:10 24	19:43 (2)			21:50		
Potential sun hours	256	276		367		418		489		503
Total, worst case		32		1180		485		878		
Sun reduction		0.21		0.24		0.35		0.37		
Oper. time red.		1.00		1.00		1.00		1.00		
Wind dir. red.		0.66		0.67		0.68		0.68		
Total reduction		0.14		0.16		0.24		0.25		
Total, real		4		192		116		218		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** E - H5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October		November	December
1	05:18		05:56		20:07 (1)	06:48		07:38	17:59 (3)	07:34	08:26
	22:06		21:33	42	20:49 (1)	20:29		19:18	50	18:49 (3)	17:10	16:28
2	05:19		05:58		20:06 (1)	06:49		07:40		17:58 (3)	07:36	08:28
	22:05		21:31	42	20:48 (1)	20:26		19:15	49	18:47 (3)	17:08	16:27
3	05:20		05:59		20:05 (1)	06:51		07:42		17:59 (3)	07:37	08:29
	22:05		21:29	43	20:48 (1)	20:24		19:13	46	18:45 (3)	17:06	16:27
4	05:21		06:01		20:05 (1)	06:53	19:25 (2)	07:43		17:59 (3)	07:39	08:30
	22:05		21:27	44	20:49 (1)	20:22	9	19:34 (2)	19:11	44	18:43 (3)	17:04	16:26
5	05:21		06:03		20:04 (1)	06:54	19:22 (2)	07:45		17:59 (3)	07:41	08:32
	22:04		21:26	45	20:49 (1)	20:20	15	19:37 (2)	19:08	42	18:41 (3)	17:02	16:26
6	05:22		06:04		20:04 (1)	06:56	19:19 (2)	07:47		17:59 (3)	07:43	08:33
	22:03		21:24	46	20:50 (1)	20:17	19	19:38 (2)	19:06	39	18:38 (3)	17:01	16:25
7	05:23		06:06		20:05 (1)	06:58	19:17 (2)	07:49		17:59 (3)	07:45	08:34
	22:03		21:22	45	20:50 (1)	20:15	22	19:39 (2)	19:04	36	18:35 (3)	16:59	16:25
8	05:24		06:07		20:04 (1)	06:59	19:15 (2)	07:50		17:59 (3)	07:47	08:36
	22:02		21:20	46	20:50 (1)	20:12	25	19:40 (2)	19:01	34	18:33 (3)	16:57	16:24
9	05:25		06:09		20:04 (1)	07:01	19:14 (2)	07:52		18:00 (3)	07:48	08:37
	22:01		21:18	45	20:49 (1)	20:10	27	19:41 (2)	18:59	31	18:31 (3)	16:56	16:24
10	05:26		06:11		20:03 (1)	07:03	19:13 (2)	07:54		18:01 (3)	07:50	08:38
	22:01		21:16	44	20:47 (1)	20:08	28	19:41 (2)	18:57	28	18:29 (3)	16:54	16:24
11	05:27		06:12		20:04 (1)	07:04	19:12 (2)	07:56		18:02 (3)	07:52	08:39
	22:00		21:14	41	20:45 (1)	20:05	26	19:38 (2)	18:54	25	18:27 (3)	16:52	16:24
12	05:28		06:14		20:03 (1)	07:06	19:12 (2)	07:57		18:02 (3)	07:54	08:40
	21:59		21:12	40	20:43 (1)	20:03	24	19:36 (2)	18:52	21	18:23 (3)	16:51	16:23
13	05:30		06:16		20:03 (1)	07:08	19:10 (2)	07:59		18:04 (3)	07:56	08:41
	21:58		21:10	38	20:41 (1)	20:01	23	19:33 (2)	18:50	17	18:21 (3)	16:49	16:23
14	05:31		06:17		20:03 (1)	07:09	19:10 (2)	08:01		18:06 (3)	07:58	08:42
	21:57		21:08	36	20:39 (1)	19:58	21	19:31 (2)	18:48	13	18:19 (3)	16:48	16:23
15	05:32		06:19		20:03 (1)	07:11	18:27 (3)	08:03		18:08 (3)	07:59	08:43
	21:56		21:06	34	20:37 (1)	19:56	26	19:29 (2)	18:45	9	18:17 (3)	16:46	16:23
16	05:33		06:21		20:04 (1)	07:13	18:21 (3)	08:04		18:11 (3)	08:01	08:44
	21:55		21:04	32	20:36 (1)	19:53	34	19:26 (2)	18:43	4	18:15 (3)	16:45	16:24
17	05:34		06:22		20:04 (1)	07:14	18:17 (3)	08:06			08:03	08:45
	21:54		21:02	29	20:33 (1)	19:51	39	19:24 (2)	18:41		16:43	16:24
18	05:36		06:24		20:04 (1)	07:16	18:15 (3)	08:08			08:05	08:46
	21:53		21:00	28	20:32 (1)	19:49	40	19:22 (2)	18:39		16:42	16:24
19	05:37	20:23 (1)	06:26		20:04 (1)	07:18	18:12 (3)	08:10			08:07	08:46
	21:52	10 20:33 (1)	20:58	25	20:29 (1)	19:46	41	19:19 (2)	18:37		16:40	16:24
20	05:38	20:20 (1)	06:27		20:05 (1)	07:19	18:10 (3)	08:12			08:08	08:47
	21:50	16 20:36 (1)	20:56	22	20:27 (1)	19:44	42	19:17 (2)	18:34		16:39	16:25
21	05:40	20:18 (1)	06:29		20:05 (1)	07:21	18:09 (3)	08:13			08:10	08:47
	21:49	19 20:37 (1)	20:53	20	20:25 (1)	19:42	39	18:48 (3)	18:32		16:38	16:25
22	05:41	20:16 (1)	06:31		20:07 (1)	07:23	18:07 (3)	08:15			08:12	08:48
	21:48	23 20:39 (1)	20:51	16	20:23 (1)	19:39	41	18:48 (3)	18:30		16:37	16:25
23	05:43	20:15 (1)	06:32		20:08 (1)	07:25	18:05 (3)	08:17			08:13	08:49
	21:46	26 20:41 (1)	20:49	13	20:21 (1)	19:37	44	18:49 (3)	18:28		16:36	16:26
24	05:44	20:14 (1)	06:34		20:09 (1)	07:26	18:05 (3)	08:19			08:15	08:49
	21:45	27 20:41 (1)	20:47	10	20:19 (1)	19:34	45	18:50 (3)	18:26		16:35	16:27
25	05:45	20:13 (1)	06:36		20:11 (1)	07:28	18:03 (3)	07:21			08:17	08:49
	21:44	30 20:43 (1)	20:45	6	20:17 (1)	19:32	46	18:49 (3)	17:24		16:33	16:27
26	05:47	20:12 (1)	06:37		20:12 (1)	07:30	18:02 (3)	07:23			08:18	08:50
	21:42	32 20:44 (1)	20:42	2	20:14 (1)	19:30	48	18:50 (3)	17:22		16:32	16:28
27	05:48	20:10 (1)	06:39			07:31	18:02 (3)	07:24			08:20	08:50
	21:41	34 20:44 (1)	20:40			19:27	48	18:50 (3)	17:20		16:31	16:29
28	05:50	20:10 (1)	06:41			07:33	18:01 (3)	07:26			08:22	08:50
	21:39	36 20:46 (1)	20:38			19:25	49	18:50 (3)	17:18		16:31	16:30
29	05:51	20:09 (1)	06:43			07:35	18:00 (3)	07:28			08:23	08:50
	21:38	37 20:46 (1)	20:36			19:22	49	18:49 (3)	17:16		16:30	16:30
30	05:53	20:09 (1)	06:44			07:36	18:00 (3)	07:30			08:25	08:50
	21:36	38 20:47 (1)	20:33			19:20	49	18:49 (3)	17:14		16:29	16:31
31	05:55	20:08 (1)	06:46					07:32				08:50
	21:34	39 20:47 (1)	20:31					17:12				16:32
Potential sun hours	506		456		381		330		263	240
Total, worst case	367		834		919		488			
Sun reduction	0.26		0.30		0.28		0.24			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.68		0.68		0.67		0.66			
Total reduction	0.18		0.20		0.19		0.16			
Total, real	66		167		174		77			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare County Council Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** F - H6

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		10:26 (1)	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34			08:26		10:17 (1)
	16:34	45	11:11 (1)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	34	10:51 (1)
2	08:50		10:27 (1)	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36			08:28		10:17 (1)
	16:35	44	11:11 (1)	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08			16:27	36	10:53 (1)
3	08:50		10:27 (1)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		10:16 (1)
	16:36	44	11:11 (1)	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	37	10:53 (1)
4	08:50		10:28 (1)	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:31		10:16 (1)
	16:37	43	11:11 (1)	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	39	10:55 (1)
5	08:50		10:29 (1)	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41			08:32		10:16 (1)
	16:38	42	11:11 (1)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03			16:26	40	10:56 (1)
6	08:49		10:30 (1)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		10:16 (1)
	16:39	41	11:11 (1)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	41	10:57 (1)
7	08:49		10:31 (1)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:34		10:16 (1)
	16:41	40	11:11 (1)	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59			16:25	42	10:58 (1)
8	08:48		10:32 (1)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		10:15 (1)
	16:42	39	11:11 (1)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57			16:24	43	10:58 (1)
9	08:48		10:33 (1)	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		10:16 (1)
	16:44	37	11:10 (1)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	44	11:00 (1)
10	08:47		10:34 (1)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		10:16 (1)
	16:45	36	11:10 (1)	17:40	18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54			16:24	44	11:00 (1)
11	08:47		10:35 (1)	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		10:16 (1)
	16:46	34	11:09 (1)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52			16:24	45	11:01 (1)
12	08:46		10:36 (1)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		10:16 (1)
	16:48	32	11:08 (1)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:24	45	11:01 (1)
13	08:45		10:37 (1)	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56			08:41		10:16 (1)
	16:49	31	11:08 (1)	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49			16:23	46	11:02 (1)
14	08:44		10:39 (1)	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		10:17 (1)
	16:51	28	11:07 (1)	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	46	11:03 (1)
15	08:44		10:41 (1)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59			08:43		10:17 (1)
	16:53	24	11:05 (1)	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46			16:23	46	11:03 (1)
16	08:43		10:43 (1)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01			08:44		10:18 (1)
	16:54	21	11:04 (1)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45			16:24	46	11:04 (1)
17	08:42		10:46 (1)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03			08:45		10:18 (1)
	16:56	16	11:02 (1)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	47	11:05 (1)
18	08:41		10:50 (1)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05			08:46		10:18 (1)
	16:57	9	10:59 (1)	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42			16:24	47	11:05 (1)
19	08:40			07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07			08:46		10:18 (1)
	16:59			17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41			16:24	48	11:06 (1)
20	08:39			07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08			08:47		10:19 (1)
	17:01			17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39			16:25	48	11:07 (1)
21	08:37			07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10			08:48		10:19 (1)
	17:03			18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38			16:25	47	11:06 (1)
22	08:36			07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12			08:48		10:20 (1)
	17:04			18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37			16:26	47	11:07 (1)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13			08:49		10:20 (1)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36			16:26	48	11:08 (1)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15		10:27 (1)	08:49		10:20 (1)
	17:08			18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	8	10:35 (1)	16:27	48	11:08 (1)
25	08:32			07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17		10:24 (1)	08:49		10:22 (1)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16	10:40 (1)	16:27	47	11:09 (1)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18		10:22 (1)	08:50		10:22 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32	21	10:43 (1)	16:28	47	11:09 (1)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20		10:21 (1)	08:50		10:22 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	24	10:45 (1)	16:29	47	11:09 (1)
28	08:28			07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22		10:19 (1)	08:50		10:23 (1)
	17:15			18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	28	10:47 (1)	16:30	46	11:09 (1)
29	08:27				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23		10:18 (1)	08:50		10:23 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	31	10:49 (1)	16:30	47	11:10 (1)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25		10:18 (1)	08:50		10:24 (1)
	17:19				20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	32	10:50 (1)	16:31	46	11:10 (1)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:50		10:25 (1)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	45	11:10 (1)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		606												160			1379	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.63												0.63			0.63	
Total reduction		0.10												0.12			0.09	
Total, real		60												19			119	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May		June	
1	08:50	08:22	07:27		07:15		18:41 (3)	06:08	20:05 (1)	05:22		20:23 (1)
	16:34	17:23	18:16		20:12	40	19:45 (2)	21:04	30	20:35 (1)	21:51	10	20:33 (1)
2	08:50	08:21	07:25		07:13		18:45 (3)	06:06		20:06 (1)	05:21		20:27 (1)
	16:35	17:25	18:18		20:13	35	19:47 (2)	21:06	31	20:37 (1)	21:53	2	20:29 (1)
3	08:50	08:19	07:23		17:51 (3)	07:10	19:25 (2)	06:05		20:05 (1)	05:20		
	16:36	17:27	18:20	3	17:54 (3)	20:15	23	19:48 (2)	21:08	34	20:39 (1)	21:54		
4	08:50	08:17	07:20		17:46 (3)	07:08	19:25 (2)	06:03		20:05 (1)	05:19		
	16:37	17:28	18:21	9	17:55 (3)	20:17	26	19:51 (2)	21:09	35	20:40 (1)	21:55		
5	08:50	08:15	07:18		17:44 (3)	07:06	19:26 (2)	06:01		20:04 (1)	05:18		
	16:38	17:30	18:23	13	17:57 (3)	20:19	27	19:53 (2)	21:11	37	20:41 (1)	21:56		
6	08:49	08:14	07:16		17:42 (3)	07:03	19:26 (2)	05:59		20:04 (1)	05:18		
	16:39	17:32	18:25	17	17:59 (3)	20:20	26	19:52 (2)	21:13	39	20:43 (1)	21:57		
7	08:49	08:12	07:14		17:40 (3)	07:01	19:27 (2)	05:57		20:04 (1)	05:17		
	16:41	17:34	18:27	20	18:00 (3)	20:22	24	19:51 (2)	21:14	41	20:45 (1)	21:58		
8	08:48	08:10	07:11		17:39 (3)	06:59	19:28 (2)	05:55		20:04 (1)	05:17		
	16:42	17:36	18:29	24	18:03 (3)	20:24	22	19:50 (2)	21:16	42	20:46 (1)	21:59		
9	08:48	08:08	07:09		17:38 (3)	06:56	19:28 (2)	05:53		20:04 (1)	05:16		
	16:43	17:38	18:31	27	18:05 (3)	20:26	20	19:48 (2)	21:18	43	20:47 (1)	22:00		
10	08:47	08:07	07:07		17:36 (3)	06:54	19:30 (2)	05:52		20:04 (1)	05:16		
	16:45	17:40	18:32	30	18:06 (3)	20:27	16	19:46 (2)	21:19	45	20:49 (1)	22:00		
11	08:47	08:05	07:04		17:35 (3)	06:52	19:33 (2)	05:50		20:04 (1)	05:15		
	16:46	17:42	18:34	33	18:08 (3)	20:29	10	19:43 (2)	21:21	45	20:49 (1)	22:01		
12	08:46	08:03	07:02		17:33 (3)	06:49		05:48		20:04 (1)	05:15		
	16:48	17:44	18:36	37	18:10 (3)	20:31		21:23	44	20:48 (1)	22:02		
13	08:45	08:01	07:00		17:33 (3)	06:47		05:46		20:05 (1)	05:15		
	16:49	17:46	18:38	39	18:12 (3)	20:33		21:24	43	20:48 (1)	22:03		
14	08:44	07:59	06:57		17:33 (3)	06:45		05:45		20:05 (1)	05:14		
	16:51	17:48	18:40	41	18:14 (3)	20:34		21:26	42	20:47 (1)	22:03		
15	08:44	07:57	06:55		17:31 (3)	06:43		05:43		20:05 (1)	05:14		
	16:53	17:49	18:41	44	18:15 (3)	20:36		21:28	42	20:47 (1)	22:04		
16	08:43	07:55	06:53		17:31 (3)	06:40		05:42		20:06 (1)	05:14		
	16:54	17:51	18:43	46	18:17 (3)	20:38		21:29	41	20:47 (1)	22:04		
17	08:42	07:53	06:50		17:31 (3)	06:38		05:40		20:06 (1)	05:14		
	16:56	17:53	18:45	49	18:20 (3)	20:40		21:31	40	20:46 (1)	22:05		
18	08:41	07:51	06:48		17:30 (3)	06:36		05:39		20:07 (1)	05:14		
	16:57	17:55	18:47	50	18:20 (3)	20:41		21:32	39	20:46 (1)	22:05		
19	08:40	07:49	06:46		17:30 (3)	06:34		05:37		20:08 (1)	05:14		
	16:59	17:57	18:49	50	18:20 (3)	20:43		21:34	38	20:46 (1)	22:06		
20	08:39	07:47	06:43		17:30 (3)	06:31		05:36		20:08 (1)	05:14		
	17:01	17:59	18:50	49	18:19 (3)	20:45		21:35	37	20:45 (1)	22:06		
21	08:37	07:45	06:41		17:30 (3)	06:29		05:34		20:09 (1)	05:14		
	17:03	18:01	18:52	49	18:19 (3)	20:47		21:37	35	20:44 (1)	22:06		
22	08:36	07:42	06:39		17:31 (3)	06:27	20:17 (1)	05:33		20:10 (1)	05:14		
	17:04	18:03	18:54	47	18:18 (3)	20:48	3	20:20 (1)	21:38	34	20:44 (1)	22:06		
23	08:35	07:40	06:36		17:30 (3)	06:25	20:15 (1)	05:32		20:11 (1)	05:15		
	17:06	18:05	18:56	47	18:17 (3)	20:50	7	20:22 (1)	21:40	32	20:43 (1)	22:06		
24	08:34	07:38	06:34		17:31 (3)	06:23	20:13 (1)	05:30		20:11 (1)	05:15		
	17:08	18:07	18:57	45	18:16 (3)	20:52	11	20:24 (1)	21:41	31	20:42 (1)	22:07		
25	08:32	07:36	06:31		17:31 (3)	06:21	20:12 (1)	05:29		20:12 (1)	05:15		
	17:10	18:08	18:59	44	18:15 (3)	20:54	13	20:25 (1)	21:43	29	20:41 (1)	22:07		
26	08:31	07:34	06:29		17:32 (3)	06:19	20:10 (1)	05:28		20:13 (1)	05:16		
	17:12	18:10	19:01	45	18:35 (2)	20:55	17	20:27 (1)	21:44	27	20:40 (1)	22:07		
27	08:30	07:32	06:27		17:33 (3)	06:17	20:09 (1)	05:27		20:15 (1)	05:16		
	17:13	18:12	19:03	46	18:37 (2)	20:57	20	20:29 (1)	21:45	24	20:39 (1)	22:07		
28	08:28	07:29	06:24		17:33 (3)	06:14	20:08 (1)	05:26		20:16 (1)	05:17		
	17:15	18:14	19:05	47	18:38 (2)	20:59	22	20:30 (1)	21:47	22	20:38 (1)	22:06		
29	08:27		07:22		18:35 (3)	06:12	20:07 (1)	05:25		20:18 (1)	05:17		
	17:17		20:06	46	19:40 (2)	21:01	25	20:32 (1)	21:48	20	20:38 (1)	22:06		
30	08:25		07:20		18:37 (3)	06:10	20:06 (1)	05:24		20:19 (1)	05:18		
	17:19		20:08	45	19:42 (2)	21:02	27	20:33 (1)	21:49	18	20:37 (1)	22:06		
31	08:24		07:17		18:38 (3)				05:23		20:21 (1)			
	17:21		20:10	44	19:43 (2)				21:50	14	20:35 (1)			
Potential sun hours	256	276	367		418				489			503		
Total, worst case				1086		414				1074			12	
Sun reduction				0.24		0.35				0.37			0.30	
Oper. time red.				1.00		1.00				1.00			1.00	
Wind dir. red.				0.67		0.68				0.68			0.68	
Total reduction				0.16		0.24				0.25			0.20	
Total, real				176		99				267			2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July			August			September			October			November	December
1	05:18			05:56		20:15 (1)	06:48		19:32 (2)	07:38		18:13 (3)	07:34	08:26
	22:06			21:33	44	20:59 (1)	20:29	10	19:42 (2)	19:18	37	18:50 (3)	17:10	16:28
2	05:19			05:58		20:14 (1)	06:49		19:29 (2)	07:40		18:13 (3)	07:36	08:28
	22:05			21:31	45	20:59 (1)	20:26	16	19:45 (2)	19:15	34	18:47 (3)	17:08	16:27
3	05:20			05:59		20:14 (1)	06:51		19:26 (2)	07:42		18:13 (3)	07:37	08:29
	22:05			21:29	44	20:58 (1)	20:24	20	19:46 (2)	19:13	32	18:45 (3)	17:06	16:27
4	05:21			06:01		20:14 (1)	06:53		19:25 (2)	07:43		18:14 (3)	07:39	08:30
	22:05			21:27	43	20:57 (1)	20:22	22	19:47 (2)	19:11	29	18:43 (3)	17:04	16:26
5	05:21			06:03		20:13 (1)	06:54		19:24 (2)	07:45		18:15 (3)	07:41	08:32
	22:04			21:26	42	20:55 (1)	20:20	24	19:48 (2)	19:08	26	18:41 (3)	17:02	16:26
6	05:22			06:04		20:14 (1)	06:56		19:22 (2)	07:47		18:16 (3)	07:43	08:33
	22:03			21:24	40	20:54 (1)	20:17	26	19:48 (2)	19:06	22	18:38 (3)	17:01	16:25
7	05:23			06:06		20:14 (1)	06:58		19:21 (2)	07:49		18:17 (3)	07:45	08:34
	22:03			21:22	39	20:53 (1)	20:15	27	19:48 (2)	19:04	18	18:35 (3)	16:59	16:25
8	05:24			06:07		20:14 (1)	06:59		19:20 (2)	07:50		18:18 (3)	07:47	08:36
	22:02			21:20	36	20:50 (1)	20:12	25	19:45 (2)	19:01	15	18:33 (3)	16:57	16:24
9	05:25			06:09		20:14 (1)	07:01		19:19 (2)	07:52		18:20 (3)	07:48	08:37
	22:01			21:18	35	20:49 (1)	20:10	24	19:43 (2)	18:59	11	18:31 (3)	16:56	16:24
10	05:26			06:11		20:14 (1)	07:03		18:38 (3)	07:54		18:23 (3)	07:50	08:38
	22:01			21:16	33	20:47 (1)	20:08	35	19:41 (2)	18:57	6	18:29 (3)	16:54	16:24
11	05:27		20:32 (1)	06:12		20:14 (1)	07:04		18:33 (3)	07:56			07:52	08:39
	22:00	7	20:39 (1)	21:14	31	20:45 (1)	20:05	41	19:38 (2)	18:54			16:52	16:24
12	05:28		20:29 (1)	06:14		20:14 (1)	07:06		18:31 (3)	07:57			07:54	08:40
	21:59	13	20:42 (1)	21:12	29	20:43 (1)	20:03	44	19:36 (2)	18:52			16:51	16:23
13	05:30		20:29 (1)	06:16		20:15 (1)	07:08		18:27 (3)	07:59			07:56	08:41
	21:58	16	20:45 (1)	21:10	26	20:41 (1)	20:01	46	19:33 (2)	18:50			16:49	16:23
14	05:31		20:27 (1)	06:17		20:15 (1)	07:09		18:25 (3)	08:01			07:58	08:42
	21:57	19	20:46 (1)	21:08	24	20:39 (1)	19:58	48	19:31 (2)	18:48			16:48	16:23
15	05:32		20:26 (1)	06:19		20:16 (1)	07:11		18:24 (3)	08:03			07:59	08:43
	21:56	21	20:47 (1)	21:06	21	20:37 (1)	19:56	47	19:29 (2)	18:45			16:46	16:23
16	05:33		20:25 (1)	06:21		20:17 (1)	07:13		18:22 (3)	08:04			08:01	08:44
	21:55	24	20:49 (1)	21:04	19	20:36 (1)	19:53	46	19:26 (2)	18:43			16:45	16:24
17	05:34		20:23 (1)	06:22		20:17 (1)	07:14		18:20 (3)	08:06			08:03	08:45
	21:54	26	20:49 (1)	21:02	16	20:33 (1)	19:51	46	19:24 (2)	18:41			16:43	16:24
18	05:36		20:22 (1)	06:24		20:18 (1)	07:16		18:19 (3)	08:08			08:05	08:46
	21:53	28	20:50 (1)	21:00	14	20:32 (1)	19:49	44	19:03 (3)	18:39			16:42	16:24
19	05:37		20:22 (1)	06:26		20:19 (1)	07:18		18:18 (3)	08:10			08:07	08:46
	21:52	30	20:52 (1)	20:58	10	20:29 (1)	19:46	45	19:03 (3)	18:37			16:40	16:24
20	05:38		20:21 (1)	06:27		20:21 (1)	07:19		18:17 (3)	08:12			08:08	08:47
	21:50	32	20:53 (1)	20:56	6	20:27 (1)	19:44	46	19:03 (3)	18:34			16:39	16:25
21	05:40		20:20 (1)	06:29		20:22 (1)	07:21		18:16 (3)	08:13			08:10	08:47
	21:49	33	20:53 (1)	20:53	3	20:25 (1)	19:42	48	19:04 (3)	18:32			16:38	16:25
22	05:41		20:19 (1)	06:31			07:23		18:15 (3)	08:15			08:12	08:48
	21:48	35	20:54 (1)	20:51			19:39	48	19:03 (3)	18:30			16:37	16:25
23	05:43		20:19 (1)	06:32			07:25		18:14 (3)	08:17			08:13	08:49
	21:46	36	20:55 (1)	20:49			19:37	49	19:03 (3)	18:28			16:36	16:26
24	05:44		20:18 (1)	06:34			07:26		18:14 (3)	08:19			08:15	08:49
	21:45	37	20:55 (1)	20:47			19:34	50	19:04 (3)	18:26			16:35	16:27
25	05:45		20:18 (1)	06:36			07:28		18:13 (3)	07:21			08:17	08:49
	21:44	39	20:57 (1)	20:45			19:32	50	19:03 (3)	17:24			16:33	16:27
26	05:47		20:17 (1)	06:37			07:30		18:13 (3)	07:23			08:18	08:50
	21:42	40	20:57 (1)	20:42			19:30	49	19:02 (3)	17:22			16:32	16:28
27	05:48		20:16 (1)	06:39			07:31		18:13 (3)	07:24			08:20	08:50
	21:41	41	20:57 (1)	20:40			19:27	47	19:00 (3)	17:20			16:31	16:29
28	05:50		20:17 (1)	06:41			07:33		18:13 (3)	07:26			08:22	08:50
	21:39	41	20:58 (1)	20:38			19:25	45	18:58 (3)	17:18			16:31	16:30
29	05:51		20:16 (1)	06:43			07:35		18:12 (3)	07:28			08:23	08:50
	21:37	42	20:58 (1)	20:36			19:22	43	18:55 (3)	17:16			16:30	16:30
30	05:53		20:16 (1)	06:44			07:36		18:13 (3)	07:30			08:25	08:50
	21:36	43	20:59 (1)	20:33			19:20	39	18:52 (3)	17:14			16:29	16:31
31	05:55		20:15 (1)	06:46						07:32				08:50
	21:34	44	20:59 (1)	20:31						17:12				16:32
Potential sun hours	506			456			381			330			263	240
Total, worst case		647			600			1150			230			
Sun reduction		0.26			0.30			0.28			0.24			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.68			0.68			0.67			0.66			
Total reduction		0.18			0.20			0.19			0.16			
Total, real		116			120			218			36			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April		May		June	
1	08:50		08:22		07:27		07:15		18:49 (3)		06:08	
	16:34		17:23		18:16		20:12	50	19:45 (2)		21:04	2
2	08:50		08:21		07:25		07:13		18:50 (3)		06:06	
	16:35		17:25		18:18		20:13	52	19:47 (2)		21:06	5
3	08:50		08:19		07:23		07:10		18:49 (3)		06:05	
	16:36		17:27		18:20		20:15	54	19:48 (2)		21:08	9
4	08:50		08:17		07:20		07:08		18:50 (3)		06:03	
	16:37		17:28		18:21		20:17	57	19:51 (2)		21:09	11
5	08:49		08:15		07:18		07:06		18:51 (3)		06:01	
	16:38		17:30		18:23		20:19	57	19:53 (2)		21:11	14
6	08:49		08:14		07:16		07:03		18:51 (3)		05:59	
	16:39		17:32		18:25		20:20	58	19:54 (2)		21:13	17
7	08:49		08:12		07:14		07:01		18:52 (3)		05:57	
	16:41		17:34		18:27		20:22	58	19:56 (2)		21:14	19
8	08:48		08:10		07:11		06:59		18:54 (3)		05:55	
	16:42		17:36		18:29		20:24	56	19:57 (2)		21:16	21
9	08:48		08:08		07:09		06:56		18:54 (3)		05:53	
	16:43		17:38		18:31		20:26	55	19:58 (2)		21:18	23
10	08:47		08:07		07:07		06:54		18:56 (3)		05:52	
	16:45		17:40		18:32		20:27	53	20:00 (2)		21:19	26
11	08:47		08:05		07:04		06:52		18:58 (3)		05:50	
	16:46		17:42		18:34		20:29	50	20:02 (2)		21:21	28
12	08:46		08:03		07:02		06:49		19:01 (3)		05:48	
	16:48		17:44		18:36		20:31	46	20:04 (2)		21:23	30
13	08:45		08:01		07:00		06:47		19:05 (3)		05:46	
	16:49		17:46		18:38		20:33	35	20:02 (2)		21:24	31
14	08:44		07:59		06:57	18:08 (3)	06:45		19:38 (2)		05:45	
	16:51		17:48		18:40	6 18:14 (3)	20:34	23	20:01 (2)		21:26	33
15	08:43		07:57		06:55	18:05 (3)	06:43		19:40 (2)		05:43	
	16:53		17:49		18:41	10 18:15 (3)	20:36	19	19:59 (2)		21:28	35
16	08:43		07:55		06:53	18:02 (3)	06:40		19:41 (2)		05:42	
	16:54		17:51		18:43	15 18:17 (3)	20:38	16	19:57 (2)		21:29	36
17	08:42		07:53		06:50	18:01 (3)	06:38		19:44 (2)		05:40	
	16:56		17:53		18:45	19 18:20 (3)	20:40	11	19:55 (2)		21:31	37
18	08:41		07:51		06:48	17:59 (3)	06:36				05:39	
	16:57		17:55		18:47	22 18:21 (3)	20:41				21:32	39
19	08:40		07:49		06:46	17:57 (3)	06:34				05:37	
	16:59		17:57		18:49	26 18:23 (3)	20:43				21:34	40
20	08:39		07:47		06:43	17:55 (3)	06:31				05:36	
	17:01		17:59		18:50	29 18:24 (3)	20:45				21:35	41
21	08:37		07:45		06:41	17:55 (3)	06:29				05:34	
	17:03		18:01		18:52	31 18:26 (3)	20:47				21:37	42
22	08:36		07:42		06:39	17:54 (3)	06:27				05:33	
	17:04		18:03		18:54	34 18:28 (3)	20:48				21:38	43
23	08:35		07:40		06:36	17:52 (3)	06:25				05:32	
	17:06		18:05		18:56	38 18:30 (3)	20:50				21:40	43
24	08:34		07:38		06:34	17:52 (3)	06:23				05:30	
	17:08		18:07		18:57	40 18:32 (3)	20:52				21:41	42
25	08:32		07:36		06:31	17:51 (3)	06:21				05:29	
	17:10		18:08		18:59	42 18:33 (3)	20:54				21:43	42
26	08:31		07:34		06:29	17:50 (3)	06:19				05:28	
	17:12		18:10		19:01	45 18:35 (3)	20:55				21:44	41
27	08:30		07:32		06:27	17:50 (3)	06:17				05:27	
	17:13		18:12		19:03	47 18:37 (3)	20:57				21:45	40
28	08:28		07:29		06:24	17:49 (3)	06:14				05:26	
	17:15		18:14		19:05	49 18:38 (3)	20:59				21:47	40
29	08:27				07:22	18:49 (3)	06:12				05:25	
	17:17				20:06	50 19:39 (3)	21:01				21:48	39
30	08:25				07:20	18:50 (3)	06:10				05:24	
	17:19				20:08	49 19:39 (3)	21:02				21:49	39
31	08:24				07:17	18:49 (3)					05:23	
	17:21				20:10	49 19:38 (3)					21:50	37
Potential sun hours	256		276		367		418		489		503	
Total, worst case					601		750		945		884	
Sun reduction					0.24		0.35		0.37		0.30	
Oper. time red.					1.00		1.00		1.00		1.00	
Wind dir. red.					0.68		0.68		0.67		0.67	
Total reduction					0.17		0.24		0.25		0.20	
Total, real					99		179		233		177	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October	November	December
1	05:18		20:37 (1)	05:56		20:34 (1)	06:48		18:57 (3)	07:38	07:34	08:26
	22:06	29	21:06 (1)	21:33	29	21:03 (1)	20:29	50	20:01 (2)	19:18	17:10	16:28
2	05:19		20:37 (1)	05:58		20:34 (1)	06:49		18:55 (3)	07:40	07:36	08:28
	22:05	30	21:07 (1)	21:31	26	21:00 (1)	20:26	53	19:59 (2)	19:15	17:08	16:27
3	05:20		20:36 (1)	05:59		20:34 (1)	06:51		18:52 (3)	07:42	07:37	08:29
	22:05	31	21:07 (1)	21:29	24	20:58 (1)	20:24	55	19:56 (2)	19:13	17:06	16:27
4	05:21		20:36 (1)	06:01		20:35 (1)	06:53		18:51 (3)	07:43	07:39	08:30
	22:05	32	21:08 (1)	21:27	22	20:57 (1)	20:22	57	19:55 (2)	19:11	17:04	16:26
5	05:21		20:36 (1)	06:03		20:36 (1)	06:54		18:49 (3)	07:45	07:41	08:32
	22:04	32	21:08 (1)	21:26	20	20:56 (1)	20:20	58	19:53 (2)	19:08	17:02	16:26
6	05:22		20:36 (1)	06:04		20:36 (1)	06:56		18:47 (3)	07:47	07:43	08:33
	22:03	33	21:09 (1)	21:24	18	20:54 (1)	20:17	58	19:50 (2)	19:06	17:01	16:25
7	05:23		20:36 (1)	06:06		20:37 (1)	06:58		18:46 (3)	07:49	07:45	08:34
	22:03	34	21:10 (1)	21:22	16	20:53 (1)	20:15	57	19:48 (2)	19:04	16:59	16:25
8	05:24		20:36 (1)	06:07		20:37 (1)	06:59		18:44 (3)	07:50	07:47	08:36
	22:02	34	21:10 (1)	21:20	13	20:50 (1)	20:12	57	19:45 (2)	19:01	16:57	16:24
9	05:25		20:35 (1)	06:09		20:38 (1)	07:01		18:44 (3)	07:52	07:48	08:37
	22:01	35	21:10 (1)	21:18	11	20:49 (1)	20:10	54	19:43 (2)	18:59	16:56	16:24
10	05:26		20:35 (1)	06:11		20:39 (1)	07:03		18:43 (3)	07:54	07:50	08:38
	22:01	36	21:11 (1)	21:16	8	20:47 (1)	20:08	53	19:41 (2)	18:57	16:54	16:24
11	05:27		20:34 (1)	06:12		20:41 (1)	07:04		18:42 (3)	07:56	07:52	08:39
	22:00	37	21:11 (1)	21:14	4	20:45 (1)	20:05	50	19:38 (2)	18:54	16:52	16:24
12	05:28		20:34 (1)	06:14		20:42 (1)	07:06		18:41 (3)	07:57	07:54	08:40
	21:59	38	21:12 (1)	21:12	1	20:43 (1)	20:03	49	19:30 (3)	18:52	16:51	16:23
13	05:30		20:35 (1)	06:16			07:08		18:40 (3)	07:59	07:56	08:41
	21:58	38	21:13 (1)	21:10			20:01	49	19:29 (3)	18:50	16:49	16:23
14	05:31		20:34 (1)	06:17			07:09		18:40 (3)	08:01	07:58	08:42
	21:57	39	21:13 (1)	21:08			19:58	49	19:29 (3)	18:48	16:48	16:23
15	05:32		20:34 (1)	06:19			07:11		18:40 (3)	08:03	07:59	08:43
	21:56	40	21:14 (1)	21:06			19:56	49	19:29 (3)	18:45	16:46	16:23
16	05:33		20:34 (1)	06:21			07:13		18:39 (3)	08:04	08:01	08:44
	21:55	40	21:14 (1)	21:04			19:53	47	19:26 (3)	18:43	16:45	16:24
17	05:34		20:33 (1)	06:22			07:14		18:39 (3)	08:06	08:03	08:45
	21:54	41	21:14 (1)	21:02			19:51	45	19:24 (3)	18:41	16:43	16:24
18	05:36		20:33 (1)	06:24			07:16		18:39 (3)	08:08	08:05	08:46
	21:53	41	21:14 (1)	21:00			19:49	43	19:22 (3)	18:39	16:42	16:24
19	05:37		20:34 (1)	06:26			07:18		18:38 (3)	08:10	08:06	08:46
	21:52	41	21:15 (1)	20:58			19:46	41	19:19 (3)	18:37	16:40	16:24
20	05:38		20:33 (1)	06:27			07:19		18:39 (3)	08:12	08:08	08:47
	21:50	42	21:15 (1)	20:56			19:44	38	19:17 (3)	18:34	16:39	16:25
21	05:40		20:33 (1)	06:29			07:21		18:39 (3)	08:13	08:10	08:47
	21:49	42	21:15 (1)	20:53			19:42	35	19:14 (3)	18:32	16:38	16:25
22	05:41		20:32 (1)	06:31			07:23		18:39 (3)	08:15	08:12	08:48
	21:48	43	21:15 (1)	20:51			19:39	32	19:11 (3)	18:30	16:37	16:25
23	05:43		20:33 (1)	06:32			07:25		18:40 (3)	08:17	08:13	08:49
	21:46	42	21:15 (1)	20:49			19:37	29	19:09 (3)	18:28	16:36	16:26
24	05:44		20:33 (1)	06:34			07:26		18:41 (3)	08:19	08:15	08:49
	21:45	40	21:13 (1)	20:47			19:34	26	19:07 (3)	18:26	16:35	16:27
25	05:45		20:33 (1)	06:36			07:28		18:41 (3)	07:21	08:17	08:49
	21:44	40	21:13 (1)	20:45			19:32	23	19:04 (3)	17:24	16:33	16:27
26	05:47		20:33 (1)	06:37		19:46 (2)	07:30		18:42 (3)	07:23	08:18	08:50
	21:42	38	21:11 (1)	20:42	11	19:57 (2)	19:30	20	19:02 (3)	17:22	16:32	16:28
27	05:48		20:32 (1)	06:39		19:43 (2)	07:31		18:44 (3)	07:24	08:20	08:50
	21:41	37	21:09 (1)	20:40	16	19:59 (2)	19:27	16	19:00 (3)	17:20	16:31	16:29
28	05:50		20:33 (1)	06:41		19:41 (2)	07:33		18:45 (3)	07:26	08:22	08:50
	21:39	35	21:08 (1)	20:38	20	20:01 (2)	19:25	13	18:58 (3)	17:18	16:31	16:30
29	05:51		20:33 (1)	06:43		19:39 (2)	07:35		18:47 (3)	07:28	08:23	08:50
	21:37	33	21:06 (1)	20:36	23	20:02 (2)	19:22	8	18:55 (3)	17:16	16:30	16:30
30	05:53		20:33 (1)	06:44		19:05 (3)	07:36		18:50 (3)	07:30	08:25	08:50
	21:36	33	21:06 (1)	20:33	36	20:03 (2)	19:20	2	18:52 (3)	17:14	16:29	16:31
31	05:55		20:33 (1)	06:46		19:00 (3)				07:32		08:50
	21:34	31	21:04 (1)	20:31	46	20:03 (2)				17:12		16:32
Potential sun hours	506			456			381			330	263	240
Total, worst case		1137			344			1216				
Sun reduction		0.26			0.30			0.28				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.67			0.67			0.68				
Total reduction		0.18			0.20			0.19				
Total, real		202			69			233				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April		May		June	
1	08:50		08:22		07:27		07:15		18:42 (3)		06:08	
	16:34		17:23		18:16		20:12	51	19:45 (2)		21:04	19
2	08:50		08:21		07:25		07:13		18:44 (3)		06:06	
	16:35		17:25		18:18		20:13	51	19:47 (2)		21:06	21
3	08:50		08:19		07:23		07:10		18:44 (3)		06:05	
	16:36		17:27		18:20		20:15	50	19:48 (2)		21:08	24
4	08:50		08:17		07:20		07:08		18:46 (3)		06:03	
	16:37		17:28		18:21		20:17	49	19:51 (2)		21:09	26
5	08:49		08:15		07:18		07:06		18:49 (3)		06:01	
	16:38		17:30		18:23		20:19	46	19:53 (2)		21:11	28
6	08:49		08:14		07:16		07:03		18:51 (3)		05:59	
	16:39		17:32		18:25		20:20	42	19:54 (2)		21:13	30
7	08:49		08:12		07:14		07:01		18:56 (3)		05:57	
	16:41		17:34		18:27		20:22	33	19:56 (2)		21:14	32
8	08:48		08:10		07:11		06:59		19:31 (2)		05:55	
	16:42		17:36		18:29	4	18:03 (3)		20:24	26	19:57 (2)		21:16	34
9	08:48		08:08		07:09		17:56 (3)		06:56		19:31 (2)		05:53	
	16:43		17:38		18:31	9	18:05 (3)		20:26	25	19:56 (2)		21:18	35
10	08:47		08:07		07:07		17:53 (3)		06:54		19:32 (2)		05:52	
	16:45		17:40		18:32	13	18:06 (3)		20:27	23	19:55 (2)		21:19	38
11	08:47		08:05		07:04		17:51 (3)		06:52		19:33 (2)		05:50	
	16:46		17:42		18:34	17	18:08 (3)		20:29	21	19:54 (2)		21:21	39
12	08:46		08:03		07:02		17:49 (3)		06:49		19:35 (2)		05:48	
	16:48		17:44		18:36	21	18:10 (3)		20:31	18	19:53 (2)		21:23	41
13	08:45		08:01		07:00		17:47 (3)		06:47		19:36 (2)		05:46	
	16:49		17:46		18:38	25	18:12 (3)		20:33	13	19:49 (2)		21:24	42
14	08:44		07:59		06:57		17:46 (3)		06:45		19:40 (2)		05:45	
	16:51		17:48		18:40	28	18:14 (3)		20:34	5	19:45 (2)		21:26	43
15	08:43		07:57		06:55		17:44 (3)		06:43				05:43	
	16:53		17:49		18:41	31	18:15 (3)		20:36				21:28	44
16	08:43		07:55		06:53		17:44 (3)		06:40				05:42	
	16:54		17:51		18:43	33	18:17 (3)		20:38				21:29	43
17	08:42		07:53		06:50		17:43 (3)		06:38				05:40	
	16:56		17:53		18:45	37	18:20 (3)		20:40				21:31	42
18	08:41		07:51		06:48		17:42 (3)		06:36				05:39	
	16:57		17:55		18:47	39	18:21 (3)		20:41				21:32	42
19	08:40		07:49		06:46		17:41 (3)		06:34				05:37	
	16:59		17:57		18:49	42	18:23 (3)		20:43				21:34	41
20	08:39		07:47		06:43		17:40 (3)		06:31				05:36	
	17:01		17:59		18:50	44	18:24 (3)		20:45				21:35	40
21	08:37		07:45		06:41		17:40 (3)		06:29				05:34	
	17:03		18:01		18:52	46	18:26 (3)		20:47				21:37	40
22	08:36		07:42		06:39		17:40 (3)		06:27				05:33	
	17:04		18:03		18:54	48	18:28 (3)		20:48				21:38	39
23	08:35		07:40		06:36		17:39 (3)		06:25				05:32	
	17:06		18:05		18:56	49	18:28 (3)		20:50				21:40	38
24	08:34		07:38		06:34		17:39 (3)		06:23				05:30	
	17:08		18:07		18:57	49	18:28 (3)		20:52				21:41	36
25	08:32		07:36		06:31		17:39 (3)		06:21				05:29	
	17:10		18:08		18:59	48	18:27 (3)		20:54				21:43	36
26	08:31		07:34		06:29		17:39 (3)		06:19		20:23 (1)		05:28	
	17:12		18:10		19:01	48	18:27 (3)		20:55	4	20:27 (1)		21:44	34
27	08:30		07:32		06:27		17:40 (3)		06:17		20:21 (1)		05:27	
	17:13		18:12		19:03	47	18:27 (3)		20:57	8	20:29 (1)		21:45	33
28	08:28		07:29		06:24		17:39 (3)		06:14		20:20 (1)		05:26	
	17:15		18:14		19:05	46	18:25 (3)		20:59	10	20:30 (1)		21:47	32
29	08:27				07:22		18:40 (3)		06:12		20:18 (1)		05:25	
	17:17				20:06	48	19:40 (2)		21:01	14	20:32 (1)		21:48	31
30	08:25				07:20		18:41 (3)		06:10		20:17 (1)		05:24	
	17:19				20:08	49	19:42 (2)		21:02	16	20:33 (1)		21:49	29
31	08:24				07:17		18:41 (3)						05:23	
	17:21				20:10	50	19:43 (2)						21:50	27
Potential sun hours	256		276		367		418		489		503	
Total, worst case						871		505		1079		183
Sun reduction						0.24		0.35		0.37		0.30
Oper. time red.						1.00		1.00		1.00		1.00
Wind dir. red.						0.67		0.68		0.67		0.67
Total reduction						0.16		0.24		0.25		0.20
Total, real						143		121		267		37

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October		November	December
1	05:18		05:56		20:23 (1)	06:48	19:32 (2)	07:38	18:28 (3)	07:34	08:26
	22:06		21:33	40	21:03 (1)	20:29	21	19:53 (2)	19:18	22	18:50 (3)	17:10	16:28
2	05:19		20:39 (1)	05:58		20:22 (1)	06:49		19:31 (2)	07:40		18:28 (3)	07:36	08:28
	22:05	6	20:45 (1)	21:31	38	21:00 (1)	20:26	23	19:54 (2)	19:15	19	18:47 (3)	17:08	16:27
3	05:20		20:37 (1)	05:59		20:22 (1)	06:51		19:29 (2)	07:42		18:30 (3)	07:37	08:29
	22:05	9	20:46 (1)	21:29	36	20:58 (1)	20:24	25	19:54 (2)	19:13	15	18:45 (3)	17:06	16:27
4	05:21		20:36 (1)	06:01		20:22 (1)	06:53		19:28 (2)	07:43		18:32 (3)	07:39	08:30
	22:05	12	20:48 (1)	21:27	35	20:57 (1)	20:22	27	19:55 (2)	19:11	11	18:43 (3)	17:04	16:26
5	05:21		20:35 (1)	06:03		20:22 (1)	06:54		18:53 (3)	07:45		18:34 (3)	07:41	08:32
	22:04	15	20:50 (1)	21:26	33	20:55 (1)	20:20	33	19:53 (2)	19:08	7	18:41 (3)	17:02	16:26
6	05:22		20:35 (1)	06:04		20:22 (1)	06:56		18:47 (3)	07:47			07:43	08:33
	22:03	16	20:51 (1)	21:24	32	20:54 (1)	20:17	42	19:50 (2)	19:06			17:01	16:25
7	05:23		20:34 (1)	06:06		20:23 (1)	06:58		18:44 (3)	07:49			07:45	08:34
	22:03	19	20:53 (1)	21:22	30	20:53 (1)	20:15	46	19:48 (2)	19:04			16:59	16:25
8	05:24		20:33 (1)	06:07		20:23 (1)	06:59		18:41 (3)	07:50			07:47	08:36
	22:02	21	20:54 (1)	21:20	27	20:50 (1)	20:12	48	19:45 (2)	19:01			16:57	16:24
9	05:25		20:31 (1)	06:09		20:24 (1)	07:01		18:39 (3)	07:52			07:48	08:37
	22:01	23	20:54 (1)	21:18	25	20:49 (1)	20:10	50	19:43 (2)	18:59			16:56	16:24
10	05:26		20:31 (1)	06:11		20:24 (1)	07:03		18:37 (3)	07:54			07:50	08:38
	22:01	24	20:55 (1)	21:16	23	20:47 (1)	20:08	51	19:41 (2)	18:57			16:54	16:24
11	05:27		20:30 (1)	06:12		20:25 (1)	07:04		18:35 (3)	07:56			07:52	08:39
	22:00	26	20:56 (1)	21:14	20	20:45 (1)	20:05	51	19:38 (2)	18:54			16:52	16:24
12	05:28		20:29 (1)	06:14		20:25 (1)	07:06		18:33 (3)	07:57			07:54	08:40
	21:59	28	20:57 (1)	21:12	18	20:43 (1)	20:03	51	19:36 (2)	18:52			16:51	16:23
13	05:30		20:30 (1)	06:16		20:26 (1)	07:08		18:31 (3)	07:59			07:56	08:41
	21:58	28	20:58 (1)	21:10	15	20:41 (1)	20:01	50	19:33 (2)	18:50			16:49	16:23
14	05:31		20:29 (1)	06:17		20:26 (1)	07:09		18:31 (3)	08:01			07:58	08:42
	21:57	30	20:59 (1)	21:08	13	20:39 (1)	19:58	48	19:31 (2)	18:48			16:48	16:23
15	05:32		20:28 (1)	06:19		20:28 (1)	07:11		18:30 (3)	08:03			07:59	08:43
	21:56	32	21:00 (1)	21:06	9	20:37 (1)	19:56	46	19:29 (2)	18:45			16:46	16:23
16	05:33		20:28 (1)	06:21		20:29 (1)	07:13		18:28 (3)	08:04			08:01	08:44
	21:55	32	21:00 (1)	21:04	7	20:36 (1)	19:53	47	19:15 (3)	18:43			16:45	16:24
17	05:34		20:27 (1)	06:22		20:30 (1)	07:14		18:28 (3)	08:06			08:03	08:45
	21:54	34	21:01 (1)	21:02	3	20:33 (1)	19:51	47	19:15 (3)	18:41			16:43	16:24
18	05:36		20:26 (1)	06:24			07:16		18:27 (3)	08:08			08:05	08:46
	21:53	35	21:01 (1)	21:00			19:49	49	19:16 (3)	18:39			16:42	16:24
19	05:37		20:26 (1)	06:26			07:18		18:26 (3)	08:10			08:06	08:46
	21:52	37	21:03 (1)	20:58			19:46	49	19:15 (3)	18:37			16:40	16:24
20	05:38		20:26 (1)	06:27			07:19		18:26 (3)	08:12			08:08	08:47
	21:50	37	21:03 (1)	20:56			19:44	49	19:15 (3)	18:34			16:39	16:25
21	05:40		20:25 (1)	06:29			07:21		18:26 (3)	08:13			08:10	08:47
	21:49	38	21:03 (1)	20:53			19:42	48	19:14 (3)	18:32			16:38	16:25
22	05:41		20:24 (1)	06:31			07:23		18:25 (3)	08:15			08:12	08:48
	21:48	39	21:03 (1)	20:51			19:39	46	19:11 (3)	18:30			16:37	16:25
23	05:43		20:25 (1)	06:32			07:25		18:25 (3)	08:17			08:13	08:49
	21:46	40	21:05 (1)	20:49			19:37	44	19:09 (3)	18:28			16:36	16:26
24	05:44		20:24 (1)	06:34			07:26		18:25 (3)	08:19			08:15	08:49
	21:45	41	21:05 (1)	20:47			19:34	42	19:07 (3)	18:26			16:35	16:27
25	05:45		20:24 (1)	06:36			07:28		18:24 (3)	07:21			08:17	08:49
	21:44	42	21:06 (1)	20:45			19:32	40	19:04 (3)	17:24			16:33	16:27
26	05:47		20:23 (1)	06:37			07:30		18:25 (3)	07:23			08:18	08:50
	21:42	43	21:06 (1)	20:42			19:30	37	19:02 (3)	17:22			16:32	16:28
27	05:48		20:23 (1)	06:39			07:31		18:25 (3)	07:24			08:20	08:50
	21:41	43	21:06 (1)	20:40			19:27	35	19:00 (3)	17:20			16:31	16:29
28	05:50		20:23 (1)	06:41			07:33		18:26 (3)	07:26			08:22	08:50
	21:39	43	21:06 (1)	20:38			19:25	32	18:58 (3)	17:18			16:31	16:30
29	05:51		20:23 (1)	06:43		19:40 (2)	07:35		18:26 (3)	07:28			08:23	08:50
	21:37	43	21:06 (1)	20:36	6	19:46 (2)	19:22	29	18:55 (3)	17:16			16:30	16:30
30	05:53		20:23 (1)	06:44		19:37 (2)	07:36		18:27 (3)	07:30			08:25	08:50
	21:36	43	21:06 (1)	20:33	13	19:50 (2)	19:20	25	18:52 (3)	17:14			16:29	16:31
31	05:55		20:22 (1)	06:46		19:34 (2)				07:32				08:50
	21:34	42	21:04 (1)	20:31	18	19:52 (2)				17:12				16:32
Potential sun hours	506			456			381			330			263	240
Total, worst case		921			441			1231			74			
Sun reduction		0.26			0.30			0.28			0.24			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.67			0.67			0.67			0.67			
Total reduction		0.18			0.20			0.19			0.16			
Total, real		164			88			235			12			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** J - H10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	14:51 (3)	08:22	15:59 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	15:33 (1)	08:26	15:44 (1)
	16:34	8 14:59 (3)	17:23	53 16:52 (2)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	55 16:28 (2)	16:28	10 15:54 (1)
2	08:50		08:21	15:59 (1)	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	15:32 (1)	08:28	15:46 (1)
	16:35		17:25	55 16:54 (2)	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	57 16:29 (2)	16:27	7 15:53 (1)
3	08:50		08:19	16:00 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	15:32 (1)	08:29	15:46 (1)
	16:36		17:26	56 16:56 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	58 16:30 (2)	16:27	6 15:52 (1)
4	08:50		08:17	16:00 (1)	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	15:31 (1)	08:30	15:48 (1)
	16:37		17:28	58 16:58 (2)	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	59 16:30 (2)	16:26	4 15:52 (1)
5	08:50		08:16	16:01 (1)	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	15:31 (1)	08:32	15:49 (1)
	16:38		17:30	59 17:00 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	60 16:31 (2)	16:26	1 15:50 (1)
6	08:49		08:14	16:01 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	15:30 (1)	08:33	
	16:39		17:32	60 17:01 (2)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	60 16:30 (2)	16:25	
7	08:49	16:04 (1)	08:12	16:01 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	15:30 (1)	08:34	
	16:41	1 16:05 (1)	17:34	59 17:00 (2)	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	58 16:28 (2)	16:25	
8	08:48	16:04 (1)	08:10	16:02 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	15:30 (1)	08:36	
	16:42	3 16:07 (1)	17:36	58 17:00 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	56 16:26 (2)	16:24	
9	08:48	16:03 (1)	08:08	16:03 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	15:30 (1)	08:37	
	16:43	6 16:09 (1)	17:38	56 16:59 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	54 16:24 (2)	16:24	
10	08:47	16:03 (1)	08:07	16:03 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	15:30 (1)	08:38	
	16:45	7 16:10 (1)	17:40	55 16:58 (2)	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	52 16:22 (2)	16:24	
11	08:47	16:02 (1)	08:05	16:04 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	15:30 (1)	08:39	14:41 (3)
	16:46	9 16:11 (1)	17:42	53 16:57 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	51 16:21 (2)	16:24	7 14:48 (3)
12	08:46	16:01 (1)	08:03	16:05 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	15:30 (1)	08:40	14:40 (3)
	16:48	12 16:13 (1)	17:44	50 16:55 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	49 16:19 (2)	16:23	10 14:50 (3)
13	08:45	16:01 (1)	08:01	16:07 (1)	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	15:31 (1)	08:41	14:40 (3)
	16:49	13 16:14 (1)	17:46	45 16:52 (2)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	46 16:17 (2)	16:23	12 14:52 (3)
14	08:44	16:01 (1)	07:59	16:08 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	15:31 (1)	08:42	14:39 (3)
	16:51	15 16:16 (1)	17:48	35 16:43 (1)	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	45 16:16 (2)	16:23	14 14:53 (3)
15	08:44	16:00 (1)	07:57	16:10 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	15:31 (1)	08:43	14:39 (3)
	16:53	18 16:18 (1)	17:49	32 16:42 (1)	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	43 16:14 (2)	16:23	15 14:54 (3)
16	08:43	16:00 (1)	07:55	16:12 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	15:32 (1)	08:44	14:39 (3)
	16:54	20 16:20 (1)	17:51	28 16:40 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	40 16:12 (2)	16:24	16 14:55 (3)
17	08:42	16:00 (1)	07:53	16:14 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	15:32 (1)	08:45	14:39 (3)
	16:56	22 16:22 (1)	17:53	24 16:38 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	39 16:11 (2)	16:24	17 14:56 (3)
18	08:41	16:00 (1)	07:51	16:18 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	15:33 (1)	08:46	14:39 (3)
	16:57	24 16:24 (1)	17:55	17 16:35 (1)	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	36 16:09 (2)	16:24	17 14:56 (3)
19	08:40	16:00 (1)	07:49	16:23 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	15:34 (1)	08:46	14:39 (3)
	16:59	26 16:26 (1)	17:57	5 16:28 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	34 16:08 (1)	16:24	18 14:57 (3)
20	08:39	15:59 (1)	07:47		06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	15:34 (1)	08:47	14:40 (3)
	17:01	28 16:27 (1)	17:59		18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	33 16:07 (1)	16:25	18 14:58 (3)
21	08:37	15:59 (1)	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	15:35 (1)	08:48	14:40 (3)
	17:03	30 16:29 (1)	18:01		18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	30 16:05 (1)	16:25	18 14:58 (3)
22	08:36	15:59 (1)	07:42		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	15:36 (1)	08:48	14:41 (3)
	17:04	33 16:32 (1)	18:03		18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	28 16:04 (1)	16:25	18 14:59 (3)
23	08:35	15:59 (1)	07:40		06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	16:51 (1)	08:13	15:36 (1)	08:49	14:41 (3)
	17:06	34 16:33 (1)	18:05		18:56	20:50	21:40	22:07	21:46	20:49	19:37	18:28	10 17:01 (1)	16:36	26 16:02 (1)	16:26	18 14:59 (3)
24	08:34	15:59 (1)	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	16:46 (1)	08:15	15:37 (1)	08:49	14:41 (3)
	17:08	36 16:35 (2)	18:07		18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	19 17:05 (1)	16:34	24 16:01 (1)	16:27	18 14:59 (3)
25	08:32	15:58 (1)	07:36		06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	15:43 (1)	08:17	15:38 (1)	08:49	14:43 (3)
	17:10	39 16:37 (2)	18:08		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	25 16:08 (1)	16:33	22 16:00 (1)	16:27	17 15:00 (3)
26	08:31	15:59 (1)	07:34		06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	15:41 (1)	08:18	15:39 (1)	08:50	14:43 (3)
	17:12	41 16:40 (2)	18:10		19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	29 16:10 (1)	16:32	20 15:59 (1)	16:28	17 15:00 (3)
27	08:30	15:58 (1)	07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	15:39 (1)	08:20	15:40 (1)	08:50	14:44 (3)
	17:13	43 16:41 (2)	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	33 16:12 (1)	16:31	18 15:58 (1)	16:29	16 15:00 (3)
28	08:28	15:59 (1)	07:29		06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	15:37 (1)	08:22	15:41 (1)	08:50	14:45 (3)
	17:15	45 16:44 (2)	18:14		19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	36 16:13 (1)	16:31	15 15:56 (1)	16:29	15 15:00 (3)
29	08:27	15:59 (1)			07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	15:36 (1)	08:23	15:42 (1)	08:50	14:46 (3)
	17:17	46 16:45 (2)			20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	46 16:22 (2)	16:30	14 15:56 (1)	16:30	14 15:00 (3)
30	08:25	15:58 (1)			07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	15:35 (1)	08:25	15:44 (1)	08:50	14:47 (3)
	17:19	49 16:47 (2)			20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	50 16:25 (2)	16:29	11 15:55 (1)	16:31	13 15:00 (3)
31	08:24	15:59 (1)			07:17		05:23		05:55	06:46		07:32	15:34 (1)			08:50	14:49 (3)
	17:21	51 16:50 (2)			20:10		21:50		21:34	20:31		17:12	52 16:26 (2)			16:32	10 14:59 (3)
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case	659	858								300	1193	346
Sun reduction	0.16	0.21								0.24	0.19	0.14
Oper. time red.	1.00	1.00								1.00	1.00	1.00
Wind dir. red.	0.63	0.63								0.63	0.63	0.60
Total reduction	0.10	0.13								0.15	0.12	0.08
Total, real	65	111								45	139	29

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare Planning Authority - Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** K - H11

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:50	15:10 (1)	08:22	15:32 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34		08:26	14:55 (1)
	16:34 48	15:58 (1)	17:23 44	16:32 (2)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28 59	15:54 (2)
2	08:50	15:09 (1)	08:21	15:35 (1)	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36		08:28	14:56 (1)
	16:35 49	15:58 (1)	17:25 35	16:30 (2)	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08		16:27 57	15:53 (2)
3	08:50	15:10 (1)	08:19	15:39 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37		08:29	14:56 (1)
	16:36 50	16:00 (1)	17:26 23	16:28 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06		16:27 56	15:52 (2)
4	08:50	15:11 (1)	08:17		07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:30	14:57 (1)
	16:37 50	16:01 (1)	17:28		18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04		16:26 54	15:52 (2)
5	08:50	15:11 (1)	08:16		07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41		08:32	14:57 (1)
	16:38 50	16:01 (1)	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02		16:26 52	15:50 (2)
6	08:49	15:12 (1)	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33	14:58 (1)
	16:39 51	16:04 (2)	17:32		18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01		16:25 50	15:48 (1)
7	08:49	15:12 (1)	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	15:14 (1)	08:34	14:58 (1)
	16:41 52	16:05 (2)	17:34		18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59 4	15:18 (1)	16:25 50	15:48 (1)
8	08:48	15:13 (1)	08:10		07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	15:08 (1)	08:36	14:58 (1)
	16:42 53	16:07 (2)	17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57 25	15:58 (2)	16:24 50	15:48 (1)
9	08:48	15:13 (1)	08:08		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	15:05 (1)	08:37	14:59 (1)
	16:43 56	16:09 (2)	17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56 37	16:01 (2)	16:24 50	15:49 (1)
10	08:47	15:13 (1)	08:07		07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	15:03 (1)	08:38	14:59 (1)
	16:45 57	16:10 (2)	17:40		18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54 45	16:03 (2)	16:24 49	15:48 (1)
11	08:47	15:13 (1)	08:05		07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	15:01 (1)	08:39	15:00 (1)
	16:46 58	16:11 (2)	17:42		18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52 51	16:04 (2)	16:24 48	15:48 (1)
12	08:46	15:13 (1)	08:03		07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	15:00 (1)	08:40	15:00 (1)
	16:48 60	16:13 (2)	17:44		18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51 56	16:05 (2)	16:23 48	15:48 (1)
13	08:45	15:14 (1)	08:01		07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	14:59 (1)	08:41	15:01 (1)
	16:49 60	16:14 (2)	17:46		18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49 60	16:06 (2)	16:23 47	15:48 (1)
14	08:44	15:14 (1)	07:59		06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	14:58 (1)	08:42	15:01 (1)
	16:51 62	16:16 (2)	17:48		18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48 63	16:07 (2)	16:23 46	15:47 (1)
15	08:44	15:15 (1)	07:57		06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	14:57 (1)	08:43	15:02 (1)
	16:53 63	16:18 (2)	17:49		18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46 67	16:08 (2)	16:23 45	15:47 (1)
16	08:43	15:15 (1)	07:55		06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	14:56 (1)	08:44	15:02 (1)
	16:54 65	16:20 (2)	17:51		18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45 70	16:09 (2)	16:24 46	15:48 (1)
17	08:42	15:16 (1)	07:53		06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	14:56 (1)	08:45	15:03 (1)
	16:56 66	16:22 (2)	17:53		18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43 71	16:09 (2)	16:24 45	15:48 (1)
18	08:41	15:17 (1)	07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	14:55 (1)	08:46	15:03 (1)
	16:57 67	16:24 (2)	17:55		18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42 73	16:09 (2)	16:24 44	15:47 (1)
19	08:40	15:18 (1)	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	14:55 (1)	08:46	15:04 (1)
	16:59 68	16:26 (2)	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40 73	16:08 (2)	16:24 44	15:48 (1)
20	08:39	15:19 (1)	07:47		06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	14:55 (1)	08:47	15:04 (1)
	17:01 69	16:28 (2)	17:59		18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39 72	16:07 (2)	16:25 45	15:49 (1)
21	08:37	15:19 (1)	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	14:55 (1)	08:48	15:04 (1)
	17:03 70	16:29 (2)	18:01		18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38 70	16:05 (2)	16:25 45	15:49 (1)
22	08:36	15:20 (1)	07:42		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	14:55 (1)	08:48	15:05 (1)
	17:04 72	16:32 (2)	18:03		18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37 69	16:04 (2)	16:25 45	15:50 (1)
23	08:35	15:20 (1)	07:40		06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	14:54 (1)	08:49	15:05 (1)
	17:06 73	16:33 (2)	18:05		18:56	20:50	21:40	22:07	21:46	20:49	19:37	18:28	16:36 68	16:02 (2)	16:26 45	15:50 (1)
24	08:34	15:21 (1)	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	14:54 (1)	08:49	15:05 (1)
	17:08 73	16:35 (2)	18:07		18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34 67	16:01 (2)	16:27 45	15:50 (1)
25	08:32	15:22 (1)	07:36		06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	14:54 (1)	08:49	15:07 (1)
	17:10 71	16:35 (2)	18:08		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33 66	16:00 (2)	16:27 44	15:51 (1)
26	08:31	15:23 (1)	07:34		06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	14:55 (1)	08:50	15:07 (1)
	17:12 70	16:36 (2)	18:10		19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32 64	15:59 (2)	16:28 45	15:52 (1)
27	08:30	15:24 (1)	07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	14:55 (1)	08:50	15:07 (1)
	17:13 67	16:35 (2)	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31 63	15:58 (2)	16:29 45	15:52 (1)
28	08:28	15:26 (1)	07:29		06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	14:54 (1)	08:50	15:07 (1)
	17:15 63	16:35 (2)	18:14		19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31 62	15:56 (2)	16:29 46	15:53 (1)
29	08:27	15:27 (1)			07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	14:55 (1)	08:50	15:08 (1)
	17:17 60	16:34 (2)			20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30 61	15:56 (2)	16:30 46	15:54 (1)
30	08:25	15:29 (1)			07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	14:56 (1)	08:50	15:08 (1)
	17:19 56	16:34 (2)			20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29 59	15:55 (2)	16:31 47	15:55 (1)
31	08:24	15:30 (1)			07:17		05:23		05:55	06:46		07:32			08:50	15:09 (1)
	17:21 51	16:33 (2)			20:10		21:50		21:34	20:31		17:12			16:32 47	15:56 (1)
Potential sun hours	256		276		367	418	489	503	506	456	381	330	263		240	
Total, worst case	1880		102										1416		1485	
Sun reduction	0.16		0.21										0.19		0.14	
Oper. time red.	1.00		1.00										1.00		1.00	
Wind dir. red.	0.62		0.62										0.62		0.61	
Total reduction	0.10		0.13										0.12		0.08	
Total, real	183		13										163		125	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April		May		June	
1	08:50		08:22		07:27		17:43 (3)	07:15	19:22 (2)	06:08	19:56 (1)	05:22
	16:34		17:23		18:16	6	17:49 (3)	20:12	23	19:45 (2)	21:04	39	20:35 (1)	21:51
2	08:50		08:21		07:25		17:41 (3)	07:13	19:23 (2)	06:06	19:56 (1)	05:21
	16:35		17:25		18:18	10	17:51 (3)	20:13	24	19:47 (2)	21:06	41	20:37 (1)	21:53
3	08:50		08:19		07:23		17:39 (3)	07:10	19:22 (2)	06:05	19:56 (1)	05:20
	16:36		17:27		18:20	15	17:54 (3)	20:15	26	19:48 (2)	21:08	43	20:39 (1)	21:54
4	08:50		08:17		07:20		17:37 (3)	07:08	19:23 (2)	06:03	19:56 (1)	05:19
	16:37		17:28		18:21	18	17:55 (3)	20:17	24	19:47 (2)	21:09	43	20:39 (1)	21:55
5	08:50		08:15		07:18		17:35 (3)	07:05	19:24 (2)	06:01	19:56 (1)	05:18
	16:38		17:30		18:23	22	17:57 (3)	20:19	22	19:46 (2)	21:11	42	20:38 (1)	21:56
6	08:49		08:14		07:16		17:34 (3)	07:03	19:25 (2)	05:59	19:56 (1)	05:18
	16:39		17:32		18:25	25	17:59 (3)	20:20	19	19:44 (2)	21:13	41	20:37 (1)	21:57
7	08:49		08:12		07:14		17:33 (3)	07:01	19:27 (2)	05:57	19:57 (1)	05:17
	16:41		17:34		18:27	27	18:00 (3)	20:22	15	19:42 (2)	21:14	41	20:38 (1)	21:58
8	08:48		08:10		07:11		17:32 (3)	06:59	19:30 (2)	05:55	19:57 (1)	05:17
	16:42		17:36		18:29	31	18:03 (3)	20:24	8	19:38 (2)	21:16	40	20:37 (1)	21:59
9	08:48		08:08		07:09		17:31 (3)	06:56		05:53	19:58 (1)	05:16
	16:43		17:38		18:31	34	18:05 (3)	20:26		21:18	38	20:36 (1)	22:00
10	08:47		08:07		07:07		17:30 (3)	06:54		05:52	19:59 (1)	05:16
	16:45		17:40		18:32	36	18:06 (3)	20:27		21:19	37	20:36 (1)	22:00
11	08:47		08:05		07:04		17:30 (3)	06:52		05:50	19:59 (1)	05:15
	16:46		17:42		18:34	38	18:08 (3)	20:29		21:21	36	20:35 (1)	22:01
12	08:46		08:03		07:02		17:28 (3)	06:49		05:48	19:59 (1)	05:15
	16:48		17:44		18:36	42	18:10 (3)	20:31		21:23	34	20:33 (1)	22:02
13	08:45		08:01		07:00		17:28 (3)	06:47		05:46	20:01 (1)	05:15
	16:49		17:46		18:38	44	18:12 (3)	20:33		21:24	32	20:33 (1)	22:03
14	08:44		07:59		06:57		17:28 (3)	06:45		05:45	20:01 (1)	05:14
	16:51		17:48		18:40	46	18:14 (3)	20:34		21:26	31	20:32 (1)	22:03
15	08:43		07:57		06:55		17:27 (3)	06:43		05:43	20:03 (1)	05:14
	16:53		17:49		18:41	47	18:14 (3)	20:36		21:28	28	20:31 (1)	22:04
16	08:43		07:55		06:53		17:28 (3)	06:40		05:42	20:05 (1)	05:14
	16:54		17:51		18:43	46	18:14 (3)	20:38		21:29	25	20:30 (1)	22:04
17	08:42		07:53		06:50		17:28 (3)	06:38	20:09 (1)	05:40	20:06 (1)	05:14
	16:56		17:53		18:45	46	18:14 (3)	20:40	4	20:13 (1)	21:31	22	20:28 (1)	22:05
18	08:41		07:51		06:48		17:28 (3)	06:36	20:07 (1)	05:39	20:08 (1)	05:14
	16:57		17:55		18:47	45	18:13 (3)	20:41	7	20:14 (1)	21:32	19	20:27 (1)	22:05
19	08:40		07:49		06:46		17:28 (3)	06:34	20:04 (1)	05:37	20:10 (1)	05:14
	16:59		17:57		18:49	44	18:12 (3)	20:43	11	20:15 (1)	21:34	16	20:26 (1)	22:06
20	08:39		07:47		06:43		17:28 (3)	06:31	20:03 (1)	05:36	20:12 (1)	05:14
	17:01		17:59		18:50	43	18:11 (3)	20:45	14	20:17 (1)	21:35	10	20:22 (1)	22:06
21	08:37		07:45		06:41		17:29 (3)	06:29	20:02 (1)	05:34		05:14
	17:03		18:01		18:52	41	18:10 (3)	20:47	17	20:19 (1)	21:37			22:06
22	08:36		07:42		06:39		17:30 (3)	06:27	20:01 (1)	05:33		05:14
	17:04		18:03		18:54	39	18:09 (3)	20:48	19	20:20 (1)	21:38			22:06
23	08:35		07:40		06:36		17:30 (3)	06:25	20:00 (1)	05:32		05:15
	17:06		18:05		18:56	37	18:07 (3)	20:50	22	20:22 (1)	21:40			22:06
24	08:34		07:38		06:34		17:31 (3)	06:23	19:59 (1)	05:30		05:15
	17:08		18:07		18:57	39	18:32 (2)	20:52	25	20:24 (1)	21:41			22:07
25	08:32		07:36		06:31		17:32 (3)	06:21	19:58 (1)	05:29		05:15
	17:10		18:08		18:59	39	18:33 (2)	20:54	27	20:25 (1)	21:43			22:07
26	08:31		07:34		06:29		17:34 (3)	06:19	19:58 (1)	05:28		05:16
	17:12		18:10		19:01	38	18:35 (2)	20:55	29	20:27 (1)	21:44			22:07
27	08:30		07:32		06:27		17:37 (3)	06:17	19:57 (1)	05:27		05:16
	17:13		18:12		19:03	36	18:37 (2)	20:57	32	20:29 (1)	21:45			22:07
28	08:28		07:29		06:24		17:39 (3)	06:14	19:57 (1)	05:26		05:17
	17:15		18:14		19:05	32	18:38 (2)	20:59	33	20:30 (1)	21:47			22:06
29	08:27				07:22		18:45 (3)	06:12	19:56 (1)	05:25		05:17
	17:17				20:06	22	19:40 (2)	21:01	36	20:32 (1)	21:48			22:06
30	08:25				07:20		19:23 (2)	06:10	19:56 (1)	05:24		05:18
	17:19				20:08	19	19:42 (2)	21:02	37	20:33 (1)	21:49			22:06
31	08:24				07:17		19:22 (2)			05:23		
	17:21				20:10	21	19:43 (2)			21:50		
Potential sun hours	256		276		367			418		489		503
Total, worst case						1028			474		658	
Sun reduction						0.24			0.35		0.37	
Oper. time red.						1.00			1.00		1.00	
Wind dir. red.						0.66			0.68		0.68	
Total reduction						0.16			0.24		0.25	
Total, real						167			113		163	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

RECEIVED: 09/05/2025
Clare Planning Authority - Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October		November	December
1	05:18		05:56		20:11 (1)	06:48		07:38	18:08 (3)	07:34	08:26
	22:06		21:33	34	20:45 (1)	20:29		19:18	42	18:50 (3)	17:10	16:28
2	05:19		05:58		20:09 (1)	06:49		07:40		18:07 (3)	07:36	08:28
	22:05		21:31	36	20:45 (1)	20:26		19:15	40	18:47 (3)	17:08	16:27
3	05:20		05:59		20:08 (1)	06:51		07:42		18:08 (3)	07:37	08:29
	22:05		21:29	38	20:46 (1)	20:24		19:13	37	18:45 (3)	17:06	16:27
4	05:21		06:01		20:08 (1)	06:53	19:27 (2)	07:43		18:08 (3)	07:39	08:30
	22:05		21:27	39	20:47 (1)	20:22	8	19:35 (2)	19:11	35	18:43 (3)	17:04	16:26
5	05:21		06:03		20:07 (1)	06:54	19:24 (2)	07:45		18:09 (3)	07:41	08:32
	22:04		21:26	39	20:46 (1)	20:20	15	19:39 (2)	19:08	32	18:41 (3)	17:02	16:26
6	05:22		06:04		20:07 (1)	06:56	19:21 (2)	07:47		18:09 (3)	07:43	08:33
	22:03		21:24	40	20:47 (1)	20:17	19	19:40 (2)	19:06	29	18:38 (3)	17:01	16:25
7	05:23		06:06		20:07 (1)	06:58	19:19 (2)	07:49		18:09 (3)	07:45	08:34
	22:03		21:22	41	20:48 (1)	20:15	22	19:41 (2)	19:04	26	18:35 (3)	16:59	16:25
8	05:24		06:07		20:06 (1)	06:59	19:17 (2)	07:50		18:10 (3)	07:47	08:36
	22:02		21:20	42	20:48 (1)	20:12	24	19:41 (2)	19:01	23	18:33 (3)	16:57	16:24
9	05:25		06:09		20:06 (1)	07:01	19:16 (2)	07:52		18:11 (3)	07:48	08:37
	22:01		21:18	42	20:48 (1)	20:10	26	19:42 (2)	18:59	20	18:31 (3)	16:56	16:24
10	05:26		06:11		20:05 (1)	07:03	19:16 (2)	07:54		18:12 (3)	07:50	08:38
	22:01		21:16	42	20:47 (1)	20:08	25	19:41 (2)	18:57	17	18:29 (3)	16:54	16:24
11	05:27		06:12		20:05 (1)	07:04	19:14 (2)	07:56		18:14 (3)	07:52	08:39
	22:00		21:14	40	20:45 (1)	20:05	24	19:38 (2)	18:54	13	18:27 (3)	16:52	16:24
12	05:28		06:14		20:04 (1)	07:06	19:14 (2)	07:57		18:15 (3)	07:54	08:40
	21:59		21:12	39	20:43 (1)	20:03	22	19:36 (2)	18:52	8	18:23 (3)	16:51	16:23
13	05:30		06:16		20:04 (1)	07:08	19:13 (2)	07:59		18:18 (3)	07:56	08:41
	21:58		21:10	37	20:41 (1)	20:01	20	19:33 (2)	18:50	3	18:21 (3)	16:49	16:23
14	05:31		06:17		20:04 (1)	07:09	19:13 (2)	08:01			07:58	08:42
	21:57		21:08	35	20:39 (1)	19:58	18	19:31 (2)	18:48			16:48	16:23
15	05:32		06:19		20:04 (1)	07:11	18:30 (3)	08:03				07:59	08:43
	21:56		21:06	33	20:37 (1)	19:56	32	19:29 (2)	18:45			16:46	16:23
16	05:33		06:21		20:05 (1)	07:13	18:25 (3)	08:04				08:01	08:44
	21:55		21:04	31	20:36 (1)	19:53	36	19:26 (2)	18:43			16:45	16:24
17	05:34		06:22		20:04 (1)	07:14	18:23 (3)	08:06				08:03	08:45
	21:54		21:02	29	20:33 (1)	19:51	38	19:24 (2)	18:41			16:43	16:24
18	05:36		06:24		20:05 (1)	07:16	18:21 (3)	08:08				08:05	08:46
	21:53		21:00	27	20:32 (1)	19:49	39	19:22 (2)	18:39			16:42	16:24
19	05:37		06:26		20:05 (1)	07:18	18:18 (3)	08:10				08:06	08:46
	21:52		20:58	24	20:29 (1)	19:46	39	19:19 (2)	18:37			16:40	16:24
20	05:38		06:27		20:06 (1)	07:19	18:17 (3)	08:12				08:08	08:47
	21:50		20:56	21	20:27 (1)	19:44	38	19:17 (2)	18:34			16:39	16:25
21	05:40		06:29		20:06 (1)	07:21	18:16 (3)	08:13				08:10	08:47
	21:49		20:53	19	20:25 (1)	19:42	39	18:55 (3)	18:32			16:38	16:25
22	05:41		06:31		20:07 (1)	07:23	18:14 (3)	08:15				08:12	08:48
	21:48		20:51	16	20:23 (1)	19:39	41	18:55 (3)	18:30			16:37	16:25
23	05:43	20:25 (1)	06:32		20:08 (1)	07:25	18:13 (3)	08:17				08:13	08:49
	21:46	5 20:30 (1)	20:49	13	20:21 (1)	19:37	42	18:55 (3)	18:28			16:36	16:26
24	05:44	20:21 (1)	06:34		20:08 (1)	07:26	18:12 (3)	08:19				08:15	08:49
	21:45	13 20:34 (1)	20:47	11	20:19 (1)	19:34	44	18:56 (3)	18:26			16:35	16:27
25	05:45	20:19 (1)	06:36		20:10 (1)	07:28	18:10 (3)	07:21				08:17	08:49
	21:44	18 20:37 (1)	20:45	7	20:17 (1)	19:32	45	18:55 (3)	17:24			16:33	16:27
26	05:47	20:17 (1)	06:37		20:11 (1)	07:30	18:10 (3)	07:23				08:18	08:50
	21:42	21 20:38 (1)	20:42	3	20:14 (1)	19:30	46	18:56 (3)	17:22			16:32	16:28
27	05:48	20:15 (1)	06:39			07:31	18:10 (3)	07:24				08:20	08:50
	21:41	24 20:39 (1)	20:40			19:27	46	18:56 (3)	17:20			16:31	16:29
28	05:50	20:15 (1)	06:41			07:33	18:09 (3)	07:26				08:22	08:50
	21:39	26 20:41 (1)	20:38			19:25	47	18:56 (3)	17:18			16:31	16:30
29	05:51	20:13 (1)	06:43			07:35	18:08 (3)	07:28				08:23	08:50
	21:37	29 20:42 (1)	20:36			19:22	47	18:55 (3)	17:16			16:30	16:30
30	05:53	20:12 (1)	06:44			07:36	18:08 (3)	07:30				08:25	08:50
	21:36	31 20:43 (1)	20:33			19:20	44	18:52 (3)	17:14			16:29	16:31
31	05:55	20:11 (1)	06:46					07:32					08:50
	21:34	33 20:44 (1)	20:31					17:12					16:32
Potential sun hours	506		456		381		330		263	240
Total, worst case	200		778		886		325			
Sun reduction	0.26		0.30		0.28		0.24			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.68		0.68		0.67		0.66			
Total reduction	0.18		0.20		0.19		0.16			
Total, real	36		156		168		51			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** M - H13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May		June
1	08:50	08:22	07:27		07:15		18:49 (3)	06:08	20:14 (1)	05:22
	16:34	17:23	18:16		20:12	47	19:45 (2)	21:04	21	20:35 (1)	21:51
2	08:50	08:21	07:25		07:13		18:50 (3)	06:06		20:15 (1)	05:21
	16:35	17:25	18:18		20:13	47	19:47 (2)	21:06	22	20:37 (1)	21:53
3	08:50	08:19	07:23		07:10		18:51 (3)	06:05		20:14 (1)	05:20
	16:36	17:27	18:20		20:15	46	19:48 (2)	21:08	25	20:39 (1)	21:54
4	08:50	08:17	07:20		07:08		18:53 (3)	06:03		20:13 (1)	05:19
	16:37	17:28	18:21		20:17	46	19:51 (2)	21:09	27	20:40 (1)	21:55
5	08:49	08:15	07:18		07:05		18:55 (3)	06:01		20:13 (1)	05:18
	16:38	17:30	18:23		20:19	44	19:53 (2)	21:11	28	20:41 (1)	21:56
6	08:49	08:14	07:16		07:03		18:56 (3)	05:59		20:12 (1)	05:18
	16:39	17:32	18:25		20:20	42	19:54 (2)	21:13	31	20:43 (1)	21:57
7	08:49	08:12	07:14		07:01		19:00 (3)	05:57		20:12 (1)	05:17
	16:41	17:34	18:27		20:22	35	19:56 (2)	21:14	33	20:45 (1)	21:58
8	08:48	08:10	07:11		06:59		19:33 (2)	05:55		20:12 (1)	05:17
	16:42	17:36	18:29		20:24	24	19:57 (2)	21:16	34	20:46 (1)	21:59
9	08:48	08:08	07:09		06:56		19:33 (2)	05:53		20:12 (1)	05:16
	16:43	17:38	18:31		20:26	24	19:57 (2)	21:18	35	20:47 (1)	22:00
10	08:47	08:07	07:07		06:54		19:34 (2)	05:52		20:12 (1)	05:16
	16:45	17:40	18:32		20:27	22	19:56 (2)	21:19	38	20:50 (1)	22:00
11	08:47	08:05	07:04	18:03 (3)	06:52		19:35 (2)	05:50		20:12 (1)	05:15
	16:46	17:42	18:34	5	18:08 (3)	20:29	20	19:55 (2)	21:21	39	20:51 (1)	22:01
12	08:46	08:03	07:02	18:00 (3)	06:49		19:37 (2)	05:48		20:12 (1)	05:15
	16:48	17:44	18:36	10	18:10 (3)	20:31	16	19:53 (2)	21:23	40	20:52 (1)	22:02
13	08:45	08:01	07:00	17:58 (3)	06:47		19:38 (2)	05:46		20:12 (1)	05:15
	16:49	17:46	18:38	14	18:12 (3)	20:33	12	19:50 (2)	21:24	40	20:52 (1)	22:03
14	08:44	07:59	06:57	17:57 (3)	06:45			05:45		20:12 (1)	05:14
	16:51	17:48	18:40	17	18:14 (3)	20:34			21:26	39	20:51 (1)	22:03
15	08:43	07:57	06:55	17:54 (3)	06:43			05:43		20:13 (1)	05:14
	16:53	17:49	18:41	21	18:15 (3)	20:36			21:28	39	20:52 (1)	22:04
16	08:43	07:55	06:53	17:53 (3)	06:40			05:42		20:14 (1)	05:14
	16:54	17:51	18:43	24	18:17 (3)	20:38			21:29	38	20:52 (1)	22:04
17	08:42	07:53	06:50	17:52 (3)	06:38			05:40		20:14 (1)	05:14
	16:56	17:53	18:45	28	18:20 (3)	20:40			21:31	37	20:51 (1)	22:05
18	08:41	07:51	06:48	17:51 (3)	06:36			05:39		20:15 (1)	05:14
	16:57	17:55	18:47	30	18:21 (3)	20:41			21:32	35	20:50 (1)	22:05
19	08:40	07:49	06:46	17:50 (3)	06:34			05:37		20:16 (1)	05:14
	16:59	17:57	18:49	33	18:23 (3)	20:43			21:34	34	20:50 (1)	22:06
20	08:39	07:47	06:43	17:49 (3)	06:31			05:36		20:16 (1)	05:14
	17:01	17:59	18:50	35	18:24 (3)	20:45			21:35	33	20:49 (1)	22:06
21	08:37	07:45	06:41	17:48 (3)	06:29			05:34		20:17 (1)	05:14
	17:03	18:01	18:52	38	18:26 (3)	20:47			21:37	32	20:49 (1)	22:06
22	08:36	07:42	06:39	17:48 (3)	06:27			05:33		20:18 (1)	05:14
	17:04	18:03	18:54	40	18:28 (3)	20:48			21:38	30	20:48 (1)	22:06
23	08:35	07:40	06:36	17:47 (3)	06:25			05:32		20:19 (1)	05:15
	17:06	18:05	18:56	43	18:30 (3)	20:50			21:40	29	20:48 (1)	22:06
24	08:34	07:38	06:34	17:47 (3)	06:23			05:30		20:19 (1)	05:15
	17:08	18:07	18:57	45	18:32 (3)	20:52			21:41	27	20:46 (1)	22:07
25	08:32	07:36	06:31	17:46 (3)	06:21		20:22 (1)	05:29		20:20 (1)	05:15
	17:10	18:08	18:59	46	18:32 (3)	20:54	3	20:25 (1)	21:43	25	20:45 (1)	22:07
26	08:31	07:34	06:29	17:47 (3)	06:19		20:20 (1)	05:28		20:21 (1)	05:16
	17:12	18:10	19:01	45	18:32 (3)	20:55	7	20:27 (1)	21:44	24	20:45 (1)	22:07
27	08:30	07:32	06:27	17:47 (3)	06:17		20:19 (1)	05:27		20:22 (1)	05:16
	17:13	18:12	19:03	44	18:31 (3)	20:57	10	20:29 (1)	21:45	22	20:44 (1)	22:07
28	08:28	07:29	06:24	17:47 (3)	06:14		20:18 (1)	05:26		20:23 (1)	05:17
	17:15	18:14	19:05	43	18:30 (3)	20:59	12	20:30 (1)	21:47	20	20:43 (1)	22:06
29	08:27		07:22		18:47 (3)	06:12		20:16 (1)	05:25		20:26 (1)	05:17
	17:17		20:06	43	19:30 (3)	21:01	16	20:32 (1)	21:48	16	20:42 (1)	22:06
30	08:25		07:20		18:48 (3)	06:10		20:15 (1)	05:24		20:27 (1)	05:18
	17:19		20:08	45	19:42 (2)	21:02	18	20:33 (1)	21:49	14	20:41 (1)	22:06
31	08:24		07:17		18:48 (3)				05:23		20:30 (1)	
	17:21		20:10	46	19:43 (2)				21:50	8	20:38 (1)	
Potential sun hours	256	276	367		418			489			503
Total, worst case				695			491			915		
Sun reduction				0.24			0.35			0.37		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.67			0.68			0.67		
Total reduction				0.16			0.24			0.25		
Total, real				114			117			227		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** M - H13

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October		November	December
1	05:18		05:56		20:23 (1)	06:48	19:34 (2)	07:38	18:39 (3)	07:34	08:26
	22:06		21:33	40	21:03 (1)	20:29 20	19:54 (2)	19:18 11	18:50 (3)	17:10	16:28
2	05:19		05:58		20:22 (1)	06:49	19:33 (2)	07:40	18:40 (3)	07:36	08:28
	22:05		21:31	38	21:00 (1)	20:26 22	19:55 (2)	19:15 7	18:47 (3)	17:08	16:27
3	05:20		05:59		20:22 (1)	06:51	19:31 (2)	07:42	18:43 (3)	07:37	08:29
	22:05		21:29	36	20:58 (1)	20:24 24	19:55 (2)	19:13 2	18:45 (3)	17:06	16:27
4	05:21		06:01		20:22 (1)	06:53	19:30 (2)	07:43		07:39	08:30
	22:05		21:27	35	20:57 (1)	20:22 25	19:55 (2)	19:11		17:04	16:26
5	05:21		06:03		20:22 (1)	06:54	18:58 (3)	07:45		07:41	08:32
	22:04		21:26	33	20:55 (1)	20:20 33	19:53 (2)	19:08		17:02	16:26
6	05:22		06:04		20:22 (1)	06:56	18:53 (3)	07:47		07:43	08:33
	22:03		21:24	32	20:54 (1)	20:17 40	19:50 (2)	19:06		17:01	16:25
7	05:23		06:06		20:22 (1)	06:58	18:50 (3)	07:49		07:45	08:34
	22:03		21:22	31	20:53 (1)	20:15 44	19:48 (2)	19:04		16:59	16:25
8	05:24		06:07		20:22 (1)	06:59	18:47 (3)	07:50		07:47	08:36
	22:02		21:20	28	20:50 (1)	20:12 46	19:45 (2)	19:01		16:57	16:24
9	05:25		06:09		20:23 (1)	07:01	18:45 (3)	07:52		07:48	08:37
	22:01		21:18	26	20:49 (1)	20:10 47	19:43 (2)	18:59		16:56	16:24
10	05:26		06:11		20:22 (1)	07:03	18:44 (3)	07:54		07:50	08:38
	22:01		21:16	25	20:47 (1)	20:08 47	19:41 (2)	18:57		16:54	16:24
11	05:27		06:12		20:23 (1)	07:04	18:41 (3)	07:56		07:52	08:39
	22:00		21:14	22	20:45 (1)	20:05 47	19:38 (2)	18:54		16:52	16:24
12	05:28	20:39 (1)	06:14		20:23 (1)	07:06	18:40 (3)	07:57		07:54	08:40
	21:59 5	20:44 (1)	21:12	20	20:43 (1)	20:03 47	19:36 (2)	18:52		16:51	16:23
13	05:30	20:37 (1)	06:16		20:24 (1)	07:08	18:38 (3)	07:59		07:56	08:41
	21:58 11	20:48 (1)	21:10	17	20:41 (1)	20:01 46	19:33 (2)	18:50		16:49	16:23
14	05:31	20:35 (1)	06:17		20:24 (1)	07:09	18:38 (3)	08:01		07:58	08:42
	21:57 15	20:50 (1)	21:08	15	20:39 (1)	19:58 43	19:31 (2)	18:48		16:48	16:23
15	05:32	20:34 (1)	06:19		20:25 (1)	07:11	18:37 (3)	08:03		07:59	08:43
	21:56 17	20:51 (1)	21:06	12	20:37 (1)	19:56 43	19:20 (3)	18:45		16:46	16:23
16	05:33	20:32 (1)	06:21		20:27 (1)	07:13	18:36 (3)	08:04		08:01	08:44
	21:55 21	20:53 (1)	21:04	9	20:36 (1)	19:53 44	19:20 (3)	18:43		16:45	16:24
17	05:34	20:31 (1)	06:22		20:27 (1)	07:14	18:35 (3)	08:06		08:03	08:45
	21:54 23	20:54 (1)	21:02	6	20:33 (1)	19:51 45	19:20 (3)	18:41		16:43	16:24
18	05:36	20:30 (1)	06:24		20:29 (1)	07:16	18:35 (3)	08:08		08:05	08:46
	21:53 25	20:55 (1)	21:00	3	20:32 (1)	19:49 45	19:20 (3)	18:39		16:42	16:24
19	05:37	20:30 (1)	06:26			07:18	18:34 (3)	08:10		08:06	08:46
	21:52 26	20:56 (1)	20:58			19:46 45	19:19 (3)	18:37		16:40	16:24
20	05:38	20:29 (1)	06:27			07:19	18:34 (3)	08:12		08:08	08:47
	21:50 28	20:57 (1)	20:56			19:44 43	19:17 (3)	18:34		16:39	16:25
21	05:40	20:28 (1)	06:29			07:21	18:34 (3)	08:13		08:10	08:47
	21:49 30	20:58 (1)	20:53			19:42 40	19:14 (3)	18:32		16:38	16:25
22	05:41	20:27 (1)	06:31			07:23	18:33 (3)	08:15		08:12	08:48
	21:48 31	20:58 (1)	20:51			19:39 38	19:11 (3)	18:30		16:37	16:25
23	05:43	20:27 (1)	06:32			07:25	18:33 (3)	08:17		08:13	08:49
	21:46 32	20:59 (1)	20:49			19:37 36	19:09 (3)	18:28		16:36	16:26
24	05:44	20:26 (1)	06:34			07:26	18:34 (3)	08:19		08:15	08:49
	21:45 34	21:00 (1)	20:47			19:34 33	19:07 (3)	18:26		16:35	16:27
25	05:45	20:26 (1)	06:36			07:28	18:33 (3)	07:21		08:17	08:49
	21:44 35	21:01 (1)	20:45			19:32 31	19:04 (3)	17:24		16:33	16:27
26	05:47	20:25 (1)	06:37			07:30	18:34 (3)	07:23		08:18	08:50
	21:42 36	21:01 (1)	20:42			19:30 28	19:02 (3)	17:22		16:32	16:28
27	05:48	20:24 (1)	06:39			07:31	18:35 (3)	07:24		08:20	08:50
	21:41 37	21:01 (1)	20:40			19:27 25	19:00 (3)	17:20		16:31	16:29
28	05:50	20:24 (1)	06:41			07:33	18:36 (3)	07:26		08:22	08:50
	21:39 38	21:02 (1)	20:38			19:25 22	18:58 (3)	17:18		16:31	16:30
29	05:51	20:23 (1)	06:43			07:35	18:36 (3)	07:28		08:23	08:50
	21:37 39	21:02 (1)	20:36			19:22 19	18:55 (3)	17:16		16:30	16:30
30	05:53	20:24 (1)	06:44		19:39 (2)	07:36	18:37 (3)	07:30		08:25	08:50
	21:36 39	21:03 (1)	20:33	12	19:51 (2)	19:20 15	18:52 (3)	17:14		16:29	16:31
31	05:55	20:23 (1)	06:46		19:36 (2)			07:32			08:50
	21:34 40	21:03 (1)	20:31	16	19:52 (2)			17:12			16:32
Potential sun hours	506		456			381		330		263	240
Total, worst case	562		456			1083		20			
Sun reduction	0.26		0.30			0.28		0.24			
Oper. time red.	1.00		1.00			1.00		1.00			
Wind dir. red.	0.67		0.68			0.67		0.67			
Total reduction	0.18		0.20			0.19		0.16			
Total, real	100		91			207		3			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authorities - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** N - H14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November		December	
1	08:50	09:28 (1)	08:22	09:51 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34		08:26	09:13 (1)
	16:34 48	10:16 (1)	17:23 21	10:12 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28 49	10:02 (1)
2	08:50	09:28 (1)	08:21	09:54 (1)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:28	09:14 (1)
	16:35 49	10:17 (1)	17:25 14	10:08 (1)	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08		16:27 49	10:03 (1)
3	08:50	09:28 (1)	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37		08:29	09:14 (1)
	16:36 49	10:17 (1)	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06		16:27 49	10:03 (1)
4	08:50	09:29 (1)	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:31	09:15 (1)
	16:37 49	10:18 (1)	17:28		18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04		16:26 49	10:04 (1)
5	08:50	09:29 (1)	08:16		07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41		08:32	09:15 (1)
	16:38 49	10:18 (1)	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03		16:26 49	10:04 (1)
6	08:49	09:30 (1)	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33	09:16 (1)
	16:39 49	10:19 (1)	17:32		18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01		16:25 49	10:05 (1)
7	08:49	09:30 (1)	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:34	09:16 (1)
	16:41 49	10:19 (1)	17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59		16:25 49	10:05 (1)
8	08:48	09:31 (1)	08:10		07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	09:30 (1)	08:36	09:16 (1)
	16:42 49	10:20 (1)	17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57 3	09:33 (1)	16:24 49	10:05 (1)
9	08:48	09:31 (1)	08:08		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	09:24 (1)	08:37	09:17 (1)
	16:44 49	10:20 (1)	17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56 16	09:40 (1)	16:24 49	10:06 (1)
10	08:47	09:31 (1)	08:07		07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	09:21 (1)	08:38	09:17 (1)
	16:45 49	10:20 (1)	17:40		18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54 22	09:43 (1)	16:24 49	10:06 (1)
11	08:47	09:31 (1)	08:05		07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	09:19 (1)	08:39	09:18 (1)
	16:46 49	10:20 (1)	17:42		18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52 26	09:45 (1)	16:24 48	10:06 (1)
12	08:46	09:32 (1)	08:03		07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	09:18 (1)	08:40	09:18 (1)
	16:48 48	10:20 (1)	17:44		18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51 29	09:47 (1)	16:24 49	10:07 (1)
13	08:45	09:32 (1)	08:01		07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	09:17 (1)	08:41	09:18 (1)
	16:49 48	10:20 (1)	17:46		18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49 32	09:49 (1)	16:23 49	10:07 (1)
14	08:44	09:32 (1)	07:59		06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	09:16 (1)	08:42	09:19 (1)
	16:51 49	10:21 (1)	17:48		18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48 34	09:50 (1)	16:23 48	10:07 (1)
15	08:44	09:33 (1)	07:57		06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	09:15 (1)	08:43	09:20 (1)
	16:53 48	10:21 (1)	17:50		18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46 36	09:51 (1)	16:23 48	10:08 (1)
16	08:43	09:34 (1)	07:55		06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	09:14 (1)	08:44	09:20 (1)
	16:54 47	10:21 (1)	17:51		18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45 39	09:53 (1)	16:24 48	10:08 (1)
17	08:42	09:34 (1)	07:53		06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	09:14 (1)	08:45	09:21 (1)
	16:56 47	10:21 (1)	17:53		18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43 40	09:54 (1)	16:24 48	10:09 (1)
18	08:41	09:35 (1)	07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	09:13 (1)	08:46	09:21 (1)
	16:57 47	10:22 (1)	17:55		18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42 42	09:55 (1)	16:24 48	10:09 (1)
19	08:40	09:36 (1)	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	09:13 (1)	08:46	09:21 (1)
	16:59 46	10:22 (1)	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41 43	09:56 (1)	16:24 48	10:09 (1)
20	08:39	09:37 (1)	07:47		06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	09:13 (1)	08:47	09:22 (1)
	17:01 45	10:22 (1)	17:59		18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39 44	09:57 (1)	16:25 48	10:10 (1)
21	08:37	09:37 (1)	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	09:13 (1)	08:48	09:22 (1)
	17:03 44	10:21 (1)	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38 44	09:57 (1)	16:25 48	10:10 (1)
22	08:36	09:38 (1)	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	09:13 (1)	08:48	09:23 (1)
	17:04 44	10:22 (1)	18:03		18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37 45	09:58 (1)	16:26 48	10:11 (1)
23	08:35	09:38 (1)	07:40		06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	09:12 (1)	08:49	09:23 (1)
	17:06 43	10:21 (1)	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36 46	09:58 (1)	16:26 48	10:11 (1)
24	08:34	09:39 (1)	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	09:12 (1)	08:49	09:24 (1)
	17:08 42	10:21 (1)	18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35 47	09:59 (1)	16:27 48	10:12 (1)
25	08:33	09:41 (1)	07:36		06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	09:12 (1)	08:49	09:25 (1)
	17:10 40	10:21 (1)	18:08		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33 48	10:00 (1)	16:27 48	10:13 (1)
26	08:31	09:41 (1)	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	09:13 (1)	08:50	09:25 (1)
	17:12 39	10:20 (1)	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32 47	10:00 (1)	16:28 48	10:13 (1)
27	08:30	09:42 (1)	07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	09:13 (1)	08:50	09:25 (1)
	17:13 37	10:19 (1)	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32 48	10:01 (1)	16:29 48	10:13 (1)
28	08:28	09:44 (1)	07:29		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	09:12 (1)	08:50	09:25 (1)
	17:15 34	10:18 (1)	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31 49	10:01 (1)	16:30 49	10:14 (1)
29	08:27	09:45 (1)			07:22	06:13	05:25	05:17	05:51	06:43	07:35	07:28	08:23	09:13 (1)	08:50	09:26 (1)
	17:17 32	10:17 (1)			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30 49	10:02 (1)	16:30 48	10:14 (1)
30	08:25	09:47 (1)			07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	09:14 (1)	08:50	09:26 (1)
	17:19 29	10:16 (1)			20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29 48	10:02 (1)	16:31 49	10:15 (1)
31	08:24	09:49 (1)			07:17		05:23		05:55	06:46		07:32			08:50	09:27 (1)
	17:21 25	10:14 (1)			20:10		21:50		21:34	20:31		17:12			16:32 48	10:15 (1)
Potential sun hours	256		276		367	418	489	503	506	456	381	330	263		240	
Total, worst case	1372		35										877		1502	
Sun reduction	0.16		0.21										0.19		0.14	
Oper. time red.	1.00		1.00										1.00		1.00	
Wind dir. red.	0.63		0.63										0.63		0.63	
Total reduction	0.10		0.13										0.12		0.09	
Total, real	137		5										104		131	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** O - H15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April		May		June	
1	08:50		08:22		07:27		07:15		19:00 (3)		06:08	
	16:34		17:23		18:16		20:12	43	19:43 (3)		21:04	7
2	08:50		08:21		07:25		07:13		19:00 (3)		06:06	
	16:35		17:25		18:18		20:13	44	19:47 (2)		21:06	9
3	08:50		08:19		07:23		07:10		18:59 (3)		06:05	
	16:36		17:27		18:20		20:15	46	19:48 (2)		21:08	12
4	08:50		08:17		07:20		07:08		19:00 (3)		06:03	
	16:37		17:28		18:21		20:17	49	19:51 (2)		21:09	15
5	08:49		08:15		07:18		07:05		19:01 (3)		06:01	
	16:38		17:30		18:23		20:19	50	19:53 (2)		21:11	17
6	08:49		08:14		07:16		07:03		19:01 (3)		05:59	
	16:39		17:32		18:25		20:20	50	19:54 (2)		21:13	20
7	08:49		08:12		07:14		07:01		19:02 (3)		05:57	
	16:41		17:34		18:27		20:22	51	19:56 (2)		21:14	21
8	08:48		08:10		07:11		06:59		19:03 (3)		05:55	
	16:42		17:36		18:29		20:24	50	19:57 (2)		21:16	23
9	08:48		08:08		07:09		06:56		19:03 (3)		05:53	
	16:43		17:38		18:31		20:26	50	19:58 (2)		21:18	25
10	08:47		08:07		07:07		06:54		19:05 (3)		05:52	
	16:45		17:40		18:32		20:27	47	20:00 (2)		21:19	27
11	08:47		08:05		07:04		06:52		19:07 (3)		05:50	
	16:46		17:42		18:34		20:29	45	20:02 (2)		21:21	29
12	08:46		08:03		07:02		06:49		19:10 (3)		05:48	
	16:48		17:44		18:36		20:31	40	20:04 (2)		21:23	31
13	08:45		08:01		07:00		06:47		19:14 (3)		05:46	
	16:49		17:46		18:38		20:33	30	20:03 (2)		21:24	32
14	08:44		07:59		06:57		06:45		19:42 (2)		05:45	
	16:51		17:48		18:40		20:34	20	20:02 (2)		21:26	34
15	08:43		07:57		06:55		06:43		19:43 (2)		05:43	
	16:53		17:49		18:41		20:36	17	20:00 (2)		21:28	35
16	08:43		07:55		06:53		06:40		19:45 (2)		05:42	
	16:54		17:51		18:43		20:38	13	19:58 (2)		21:29	37
17	08:42		07:53		06:50		18:17 (3)		06:38		19:49 (2)		05:40	
	16:56		17:53		18:45	3	18:20 (3)		20:40	6	19:55 (2)		21:31	37
18	08:41		07:51		06:48		18:13 (3)		06:36				05:39	
	16:57		17:55		18:47	8	18:21 (3)		20:41				21:32	38
19	08:40		07:49		06:46		18:11 (3)		06:34				05:37	
	16:59		17:57		18:49	12	18:23 (3)		20:43				21:34	38
20	08:39		07:47		06:43		18:09 (3)		06:31				05:36	
	17:01		17:59		18:50	15	18:24 (3)		20:45				21:35	37
21	08:37		07:45		06:41		18:07 (3)		06:29				05:34	
	17:03		18:01		18:52	19	18:26 (3)		20:47				21:37	36
22	08:36		07:42		06:39		18:06 (3)		06:27				05:33	
	17:04		18:03		18:54	22	18:28 (3)		20:48				21:38	36
23	08:35		07:40		06:36		18:04 (3)		06:25				05:32	
	17:06		18:05		18:56	26	18:30 (3)		20:50				21:40	34
24	08:34		07:38		06:34		18:04 (3)		06:23				05:30	
	17:08		18:07		18:57	28	18:32 (3)		20:52				21:41	33
25	08:32		07:36		06:31		18:02 (3)		06:21				05:29	
	17:10		18:08		18:59	31	18:33 (3)		20:54				21:43	33
26	08:31		07:34		06:29		18:02 (3)		06:19				05:28	
	17:12		18:10		19:01	33	18:35 (3)		20:55				21:44	31
27	08:30		07:32		06:27		18:01 (3)		06:17				05:27	
	17:13		18:12		19:03	36	18:37 (3)		20:57				21:45	30
28	08:28		07:29		06:24		18:00 (3)		06:14				05:26	
	17:15		18:14		19:05	38	18:38 (3)		20:59				21:47	29
29	08:27				07:22		19:00 (3)		06:12				05:25	
	17:17				20:06	40	19:40 (3)		21:01				21:48	28
30	08:25				07:20		19:00 (3)		06:10		20:30 (1)		05:24	
	17:19				20:08	42	19:42 (3)		21:02	3	20:33 (1)		21:49	26
31	08:24				07:17		18:59 (3)						05:23	
	17:21				20:10	44	19:43 (3)						21:50	24
Potential sun hours	256		276		367		418		489		503	
Total, worst case					397			654		864		140
Sun reduction					0.24			0.35		0.37		0.30
Oper. time red.					1.00			1.00		1.00		1.00
Wind dir. red.					0.68			0.68		0.67		0.67
Total reduction					0.17			0.24		0.25		0.20
Total, real					66			157		213		28

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** O - H15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October	November	December
1	05:18		05:56		20:33 (1)	06:48	19:06 (3)	07:38	07:34	08:26
	22:06		21:33	30	21:03 (1)	20:29 45	20:01 (2)	19:18	17:10	16:28
2	05:19		05:58		20:32 (1)	06:49	19:04 (3)	07:40	07:36	08:28
	22:05		21:31	28	21:00 (1)	20:26 47	19:59 (2)	19:15	17:08	16:27
3	05:20		05:59		20:32 (1)	06:51	19:01 (3)	07:42	07:37	08:29
	22:05		21:29	26	20:58 (1)	20:24 50	19:56 (2)	19:13	17:06	16:27
4	05:21	20:46 (1)	06:01		20:33 (1)	06:53	19:00 (3)	07:43	07:39	08:30
	22:05 7	20:53 (1)	21:27	24	20:57 (1)	20:22 51	19:55 (2)	19:11	17:04	16:26
5	05:21	20:45 (1)	06:03		20:32 (1)	06:54	18:59 (3)	07:45	07:41	08:32
	22:04 10	20:55 (1)	21:26	23	20:55 (1)	20:20 51	19:53 (2)	19:08	17:02	16:26
6	05:22	20:44 (1)	06:04		20:33 (1)	06:56	18:57 (3)	07:47	07:43	08:33
	22:03 13	20:57 (1)	21:24	21	20:54 (1)	20:17 50	19:50 (2)	19:06	17:01	16:25
7	05:23	20:43 (1)	06:06		20:34 (1)	06:58	18:56 (3)	07:49	07:45	08:34
	22:03 15	20:58 (1)	21:22	19	20:53 (1)	20:15 50	19:48 (2)	19:04	16:59	16:25
8	05:24	20:42 (1)	06:07		20:34 (1)	06:59	18:54 (3)	07:50	07:47	08:36
	22:02 18	21:00 (1)	21:20	16	20:50 (1)	20:12 49	19:45 (2)	19:01	16:57	16:24
9	05:25	20:40 (1)	06:09		20:35 (1)	07:01	18:54 (3)	07:52	07:48	08:37
	22:01 20	21:00 (1)	21:18	14	20:49 (1)	20:10 47	19:43 (2)	18:59	16:56	16:24
10	05:26	20:40 (1)	06:11		20:35 (1)	07:03	18:53 (3)	07:54	07:50	08:38
	22:01 21	21:01 (1)	21:16	12	20:47 (1)	20:08 45	19:41 (2)	18:57	16:54	16:24
11	05:27	20:39 (1)	06:12		20:37 (1)	07:04	18:52 (3)	07:56	07:52	08:39
	22:00 23	21:02 (1)	21:14	8	20:45 (1)	20:05 43	19:35 (3)	18:54	16:52	16:24
12	05:28	20:38 (1)	06:14		20:37 (1)	07:06	18:52 (3)	07:57	07:54	08:40
	21:59 25	21:03 (1)	21:12	6	20:43 (1)	20:03 44	19:36 (3)	18:52	16:51	16:23
13	05:30	20:39 (1)	06:16		20:39 (1)	07:08	18:50 (3)	07:59	07:56	08:41
	21:58 25	21:04 (1)	21:10	2	20:41 (1)	20:01 43	19:33 (3)	18:50	16:49	16:23
14	05:31	20:38 (1)	06:17			07:09	18:50 (3)	08:01	07:58	08:42
	21:57 27	21:05 (1)	21:08			19:58 41	19:31 (3)	18:48	16:48	16:23
15	05:32	20:37 (1)	06:19			07:11	18:50 (3)	08:03	07:59	08:43
	21:56 29	21:06 (1)	21:06			19:56 39	19:29 (3)	18:45	16:46	16:23
16	05:33	20:37 (1)	06:21			07:13	18:50 (3)	08:04	08:01	08:44
	21:55 29	21:06 (1)	21:04			19:53 36	19:26 (3)	18:43	16:45	16:24
17	05:34	20:36 (1)	06:22			07:14	18:50 (3)	08:06	08:03	08:45
	21:54 31	21:07 (1)	21:02			19:51 34	19:24 (3)	18:41	16:43	16:24
18	05:36	20:35 (1)	06:24			07:16	18:50 (3)	08:08	08:05	08:46
	21:53 32	21:07 (1)	21:00			19:49 32	19:22 (3)	18:39	16:42	16:24
19	05:37	20:36 (1)	06:26			07:18	18:50 (3)	08:10	08:06	08:46
	21:52 32	21:08 (1)	20:58			19:46 29	19:19 (3)	18:37	16:40	16:24
20	05:38	20:35 (1)	06:27			07:19	18:51 (3)	08:12	08:08	08:47
	21:50 34	21:09 (1)	20:56			19:44 26	19:17 (3)	18:34	16:39	16:25
21	05:40	20:34 (1)	06:29			07:21	18:52 (3)	08:13	08:10	08:47
	21:49 35	21:09 (1)	20:53			19:42 22	19:14 (3)	18:32	16:38	16:25
22	05:41	20:34 (1)	06:31			07:23	18:52 (3)	08:15	08:12	08:48
	21:48 35	21:09 (1)	20:51			19:39 19	19:11 (3)	18:30	16:37	16:25
23	05:43	20:34 (1)	06:32			07:25	18:53 (3)	08:17	08:13	08:49
	21:46 36	21:10 (1)	20:49			19:37 16	19:09 (3)	18:28	16:36	16:26
24	05:44	20:33 (1)	06:34			07:26	18:54 (3)	08:19	08:15	08:49
	21:45 37	21:10 (1)	20:47			19:34 13	19:07 (3)	18:26	16:35	16:27
25	05:45	20:34 (1)	06:36			07:28	18:55 (3)	07:21	08:17	08:49
	21:44 37	21:11 (1)	20:45			19:32 9	19:04 (3)	17:24	16:33	16:27
26	05:47	20:33 (1)	06:37		19:50 (2)	07:30	18:57 (3)	07:23	08:18	08:50
	21:42 38	21:11 (1)	20:42	7	19:57 (2)	19:30 5	19:02 (3)	17:22	16:32	16:28
27	05:48	20:32 (1)	06:39		19:47 (2)	07:31		07:24	08:20	08:50
	21:41 37	21:09 (1)	20:40	13	20:00 (2)	19:27		17:20	16:31	16:29
28	05:50	20:33 (1)	06:41		19:45 (2)	07:33		07:26	08:22	08:50
	21:39 35	21:08 (1)	20:38	17	20:02 (2)	19:25		17:18	16:31	16:30
29	05:51	20:32 (1)	06:43		19:42 (2)	07:35		07:28	08:23	08:50
	21:37 34	21:06 (1)	20:36	21	20:03 (2)	19:22		17:16	16:30	16:30
30	05:53	20:33 (1)	06:44		19:14 (3)	07:36		07:30	08:25	08:50
	21:36 33	21:06 (1)	20:33	32	20:04 (2)	19:20		17:14	16:29	16:31
31	05:55	20:32 (1)	06:46		19:09 (3)			07:32		08:50
	21:34 32	21:04 (1)	20:31	40	20:03 (2)			17:12		16:32
Potential sun hours	506		456		381		330	263	240	
Total, worst case	780		359		936					
Sun reduction	0.26		0.30		0.28					
Oper. time red.	1.00		1.00		1.00					
Wind dir. red.	0.67		0.67		0.68					
Total reduction	0.18		0.20		0.19					
Total, real	139		72		180					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May		June	
1	08:50	08:22	07:27		07:15		19:35 (3)		05:22	20:45 (1)
	16:34	17:23	18:16		20:12	10	19:45 (3)		21:51	33 21:18 (1)
2	08:50	08:21	07:25		07:13		19:33 (3)		05:21	20:45 (1)
	16:35	17:25	18:18		20:13	14	19:47 (3)		21:53	34 21:19 (1)
3	08:50	08:19	07:23		07:10		19:31 (3)		05:20	20:46 (1)
	16:36	17:27	18:20		20:15	17	19:48 (3)		21:54	35 21:21 (1)
4	08:50	08:17	07:20		07:08		19:30 (3)		05:19	20:46 (1)
	16:37	17:28	18:21		20:17	21	19:51 (3)		21:55	35 21:21 (1)
5	08:49	08:15	07:18		07:05		19:29 (3)		05:18	20:45 (1)
	16:38	17:30	18:23		20:19	24	19:53 (3)		21:56	35 21:20 (1)
6	08:49	08:14	07:16		07:03		19:27 (3)		05:18	20:46 (1)
	16:39	17:32	18:25		20:20	27	19:54 (3)		21:57	35 21:21 (1)
7	08:49	08:12	07:14		07:01		19:26 (3)		05:17	20:46 (1)
	16:41	17:34	18:27		20:22	30	19:56 (3)		21:58	35 21:21 (1)
8	08:48	08:10	07:11		06:59		19:26 (3)		05:17	20:47 (1)
	16:42	17:36	18:29		20:24	31	19:57 (3)		21:59	34 21:21 (1)
9	08:48	08:08	07:09		06:56		19:25 (3)		05:16	20:48 (1)
	16:43	17:38	18:31		20:26	33	19:58 (3)		22:00	33 21:21 (1)
10	08:47	08:06	07:07		06:54		19:24 (3)		05:16	20:47 (1)
	16:45	17:40	18:32		20:27	36	20:00 (2)		22:00	34 21:21 (1)
11	08:47	08:05	07:04		06:52		19:24 (3)		05:15	20:48 (1)
	16:46	17:42	18:34		20:29	38	20:02 (2)		22:01	33 21:21 (1)
12	08:46	08:03	07:02		06:49		19:24 (3)		05:15	20:49 (1)
	16:48	17:44	18:36		20:31	40	20:04 (2)		22:02	32 21:21 (1)
13	08:45	08:01	07:00		06:47		19:23 (3)		05:15	20:48 (1)
	16:49	17:46	18:38		20:33	42	20:05 (2)		22:03	33 21:21 (1)
14	08:44	07:59	06:57		06:45		19:23 (3)		05:14	20:49 (1)
	16:51	17:48	18:40		20:34	44	20:07 (2)		22:03	32 21:21 (1)
15	08:43	07:57	06:55		06:43		19:23 (3)		05:14	20:49 (1)
	16:53	17:49	18:41		20:36	46	20:09 (2)		22:04	32 21:21 (1)
16	08:43	07:55	06:53		06:40		19:24 (3)		05:14	20:50 (1)
	16:54	17:51	18:43		20:38	47	20:11 (2)		22:04	31 21:21 (1)
17	08:42	07:53	06:50		06:38		19:24 (3)		05:14	20:50 (1)
	16:56	17:53	18:45		20:40	49	20:13 (2)		22:05	31 21:21 (1)
18	08:41	07:51	06:48		06:36		19:25 (3)		05:14	20:50 (1)
	16:57	17:55	18:47		20:41	49	20:14 (2)		22:05	32 21:22 (1)
19	08:40	07:49	06:46		06:34		19:24 (3)		05:14	20:50 (1)
	16:59	17:57	18:49		20:43	51	20:15 (2)		22:06	32 21:22 (1)
20	08:39	07:47	06:43		06:31		19:25 (3)		05:14	20:50 (1)
	17:01	17:59	18:50		20:45	52	20:17 (2)		22:06	32 21:22 (1)
21	08:37	07:45	06:41		06:29		19:26 (3)		05:14	20:51 (1)
	17:03	18:01	18:52		20:47	51	20:17 (2)		22:06	32 21:23 (1)
22	08:36	07:42	06:39		06:27		19:27 (3)		05:14	20:51 (1)
	17:04	18:03	18:54		20:48	49	20:16 (2)		22:06	32 21:23 (1)
23	08:35	07:40	06:36		06:25		19:29 (3)		05:15	20:51 (1)
	17:06	18:05	18:56		20:50	45	20:14 (2)		22:06	32 21:23 (1)
24	08:34	07:38	06:34		06:23		19:30 (3)		05:15	20:51 (1)
	17:08	18:07	18:57		20:52	39	20:13 (2)		22:07	32 21:23 (1)
25	08:32	07:36	06:31		06:21		19:32 (3)		05:15	20:52 (1)
	17:10	18:08	18:59		20:54	28	20:09 (2)		22:07	32 21:24 (1)
26	08:31	07:34	06:29		06:19		19:35 (3)		05:16	20:52 (1)
	17:12	18:10	19:01		20:55	15	19:50 (3)		22:07	31 21:23 (1)
27	08:30	07:32	06:27		06:17		19:41 (3)		05:16	20:52 (1)
	17:13	18:12	19:03		20:57	3	19:44 (3)		22:07	32 21:24 (1)
28	08:28	07:29	06:24		06:14				05:17	20:52 (1)
	17:15	18:14	19:05		20:59				22:06	32 21:24 (1)
29	08:27		07:22		06:12				05:17	20:52 (1)
	17:17		20:06		21:01				22:06	33 21:25 (1)
30	08:25		07:20	19:40 (3)	06:10				05:18	20:52 (1)
	17:19		20:08	2 19:42 (3)	21:02				22:06	33 21:25 (1)
31	08:24		07:17	19:37 (3)						
	17:21		20:10	6 19:43 (3)						
Potential sun hours	256	276	367		418		488		503	
Total, worst case				8		931		411		984
Sun reduction				0.24		0.35		0.37		0.30
Oper. time red.				1.00		1.00		1.00		1.00
Wind dir. red.				0.68		0.68		0.66		0.66
Total reduction				0.17		0.24		0.24		0.20
Total, real				1		222		100		194

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** P - H16

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October	November	December
1	05:18		20:52 (1)	05:56	21:00 (1)	06:48	19:23 (3)	07:38	07:34	08:26
	22:06	33	21:25 (1)	21:33	3	21:03 (1)	20:29	38	20:01 (2)	19:18	17:10	16:28
2	05:19		20:53 (1)	05:58			06:49		19:23 (3)	07:40	07:35	08:28
	22:05	33	21:26 (1)	21:31			20:26	36	19:59 (2)	19:15	17:08	16:27
3	05:20		20:52 (1)	05:59			06:51		19:23 (3)	07:42	07:37	08:29
	22:05	34	21:26 (1)	21:29			20:24	33	19:56 (3)	19:13	17:06	16:27
4	05:21		20:52 (1)	06:01			06:53		19:23 (3)	07:43	07:39	08:30
	22:05	34	21:26 (1)	21:27			20:22	32	19:55 (3)	19:11	17:04	16:26
5	05:21		20:53 (1)	06:03			06:54		19:23 (3)	07:45	07:41	08:32
	22:04	34	21:27 (1)	21:26			20:20	30	19:53 (3)	19:08	17:02	16:26
6	05:22		20:53 (1)	06:04			06:56		19:23 (3)	07:47	07:43	08:33
	22:03	34	21:27 (1)	21:24			20:17	27	19:50 (3)	19:06	17:01	16:25
7	05:23		20:53 (1)	06:06			06:58		19:24 (3)	07:49	07:45	08:34
	22:03	35	21:28 (1)	21:22			20:15	24	19:48 (3)	19:04	16:59	16:25
8	05:24		20:53 (1)	06:07			06:59		19:24 (3)	07:50	07:47	08:36
	22:02	35	21:28 (1)	21:20			20:12	21	19:45 (3)	19:01	16:57	16:24
9	05:25		20:52 (1)	06:09			07:01		19:25 (3)	07:52	07:48	08:37
	22:01	35	21:27 (1)	21:18			20:10	18	19:43 (3)	18:59	16:56	16:24
10	05:26		20:52 (1)	06:11			07:03		19:26 (3)	07:54	07:50	08:38
	22:01	35	21:27 (1)	21:16			20:08	15	19:41 (3)	18:57	16:54	16:24
11	05:27		20:52 (1)	06:12			07:04		19:27 (3)	07:56	07:52	08:39
	22:00	34	21:26 (1)	21:14			20:05	11	19:38 (3)	18:54	16:52	16:24
12	05:28		20:52 (1)	06:14			07:06		19:29 (3)	07:57	07:54	08:40
	21:59	33	21:25 (1)	21:12			20:03	7	19:36 (3)	18:52	16:51	16:23
13	05:30		20:53 (1)	06:16			07:08		19:30 (3)	07:59	07:56	08:41
	21:58	32	21:25 (1)	21:10			20:01	3	19:33 (3)	18:50	16:49	16:23
14	05:31		20:53 (1)	06:17			07:09			08:01	07:58	08:42
	21:57	31	21:24 (1)	21:08			19:58			18:48	16:48	16:23
15	05:32		20:53 (1)	06:19			07:11			08:03	07:59	08:43
	21:56	30	21:23 (1)	21:06			19:56			18:45	16:46	16:23
16	05:33		20:53 (1)	06:21		19:46 (3)	07:13			08:04	08:01	08:44
	21:55	29	21:22 (1)	21:04	8	19:54 (3)	19:53			18:43	16:45	16:24
17	05:34		20:53 (1)	06:22		19:41 (3)	07:14			08:06	08:03	08:45
	21:54	28	21:21 (1)	21:02	16	19:57 (3)	19:51			18:41	16:43	16:24
18	05:36		20:53 (1)	06:24		19:38 (3)	07:16			08:08	08:05	08:46
	21:53	27	21:20 (1)	21:00	31	20:17 (2)	19:49			18:39	16:42	16:24
19	05:37		20:54 (1)	06:26		19:36 (3)	07:18			08:10	08:06	08:46
	21:52	26	21:20 (1)	20:58	40	20:19 (2)	19:46			18:37	16:40	16:24
20	05:38		20:53 (1)	06:27		19:34 (3)	07:19			08:12	08:08	08:47
	21:50	25	21:18 (1)	20:56	46	20:20 (2)	19:44			18:34	16:39	16:25
21	05:40		20:53 (1)	06:29		19:32 (3)	07:21			08:13	08:10	08:47
	21:49	24	21:17 (1)	20:53	49	20:21 (2)	19:42			18:32	16:38	16:25
22	05:41		20:53 (1)	06:31		19:31 (3)	07:23			08:15	08:12	08:48
	21:48	22	21:15 (1)	20:51	51	20:22 (2)	19:39			18:30	16:37	16:25
23	05:43		20:54 (1)	06:32		19:30 (3)	07:25			08:17	08:13	08:49
	21:46	21	21:15 (1)	20:49	51	20:21 (2)	19:37			18:28	16:36	16:26
24	05:44		20:54 (1)	06:34		19:28 (3)	07:26			08:19	08:15	08:49
	21:45	19	21:13 (1)	20:47	51	20:19 (2)	19:34			18:26	16:35	16:27
25	05:45		20:55 (1)	06:36		19:28 (3)	07:28			07:21	08:17	08:49
	21:44	18	21:13 (1)	20:45	49	20:17 (2)	19:32			17:24	16:33	16:27
26	05:47		20:55 (1)	06:37		19:26 (3)	07:30			07:23	08:18	08:50
	21:42	16	21:11 (1)	20:42	48	20:14 (2)	19:30			17:22	16:32	16:28
27	05:48		20:55 (1)	06:39		19:26 (3)	07:31			07:24	08:20	08:50
	21:41	14	21:09 (1)	20:40	46	20:12 (2)	19:27			17:20	16:31	16:29
28	05:50		20:57 (1)	06:41		19:25 (3)	07:33			07:26	08:22	08:50
	21:39	11	21:08 (1)	20:38	46	20:11 (2)	19:25			17:18	16:31	16:30
29	05:51		20:57 (1)	06:43		19:24 (3)	07:35			07:28	08:23	08:50
	21:37	9	21:06 (1)	20:36	44	20:08 (2)	19:22			17:16	16:30	16:30
30	05:53		20:58 (1)	06:44		19:24 (3)	07:36			07:30	08:25	08:50
	21:36	7	21:05 (1)	20:33	42	20:06 (2)	19:20			17:14	16:29	16:31
31	05:55		20:58 (1)	06:46		19:23 (3)				07:32		08:50
	21:34	6	21:04 (1)	20:31	40	20:03 (2)				17:12		16:32
Potential sun hours	506			456			381			330	263	240
Total, worst case		804			661			295				
Sun reduction		0.26			0.30			0.28				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.66			0.68			0.68				
Total reduction		0.18			0.20			0.19				
Total, real		141			132			57				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** Q - H17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February			March			April			May	June
1	08:50			08:22		16:21 (3)	07:27		17:38 (2)	07:15		19:00 (1)	06:08	05:22
	16:34			17:23	31	16:52 (3)	18:16	11	17:49 (2)	20:12	3	19:03 (1)	21:04	21:52
2	08:50			08:21		16:20 (3)	07:25		17:38 (2)	07:13			06:06	05:21
	16:35			17:25	34	16:54 (3)	18:18	13	17:51 (2)	20:13			21:06	21:53
3	08:50			08:19		16:20 (3)	07:23		17:38 (2)	07:10			06:05	05:20
	16:36			17:26	35	16:55 (3)	18:20	16	17:54 (2)	20:15			21:08	21:54
4	08:50			08:17		16:21 (3)	07:20		17:37 (2)	07:08			06:03	05:19
	16:37			17:28	37	16:58 (3)	18:21	18	17:55 (2)	20:17			21:09	21:55
5	08:50			08:16		16:21 (3)	07:18		17:37 (2)	07:05			06:01	05:18
	16:38			17:30	39	17:00 (3)	18:23	20	17:57 (2)	20:19			21:11	21:56
6	08:49			08:14		16:21 (3)	07:16		17:37 (2)	07:03			05:59	05:18
	16:39			17:32	39	17:00 (3)	18:25	22	17:59 (2)	20:20			21:13	21:57
7	08:49			08:12		16:21 (3)	07:14		17:37 (2)	07:01			05:57	05:17
	16:41			17:34	39	17:00 (3)	18:27	23	18:00 (2)	20:22			21:14	21:58
8	08:48			08:10		16:22 (3)	07:11		17:38 (2)	06:59			05:55	05:17
	16:42			17:36	38	17:00 (3)	18:29	25	18:03 (1)	20:24			21:16	21:59
9	08:48			08:08		16:22 (3)	07:09		17:39 (2)	06:56			05:53	05:16
	16:43			17:38	38	17:00 (3)	18:31	26	18:05 (1)	20:26			21:18	22:00
10	08:47			08:07		16:23 (3)	07:07		17:39 (2)	06:54			05:52	05:16
	16:45			17:40	36	16:59 (3)	18:32	27	18:06 (1)	20:27			21:19	22:00
11	08:47			08:05		16:23 (3)	07:04		17:41 (2)	06:52			05:50	05:15
	16:46			17:42	35	16:58 (3)	18:34	27	18:08 (1)	20:29			21:21	22:01
12	08:46			08:03		16:24 (3)	07:02		17:43 (2)	06:49			05:48	05:15
	16:48			17:44	34	16:58 (3)	18:36	27	18:10 (1)	20:31			21:23	22:02
13	08:45			08:01		16:25 (3)	07:00		17:48 (1)	06:47			05:46	05:15
	16:49			17:46	32	16:57 (3)	18:38	24	18:12 (1)	20:33			21:24	22:03
14	08:44			07:59		16:26 (3)	06:57		17:47 (1)	06:45			05:45	05:14
	16:51			17:48	30	16:56 (3)	18:40	27	18:14 (1)	20:34			21:26	22:03
15	08:44			07:57		16:28 (3)	06:55		17:46 (1)	06:43			05:43	05:14
	16:53			17:49	27	16:55 (3)	18:41	29	18:15 (1)	20:36			21:28	22:04
16	08:43			07:55		16:30 (3)	06:53		17:45 (1)	06:40			05:42	05:14
	16:54			17:51	23	16:53 (3)	18:43	32	18:17 (1)	20:38			21:29	22:04
17	08:42			07:53		16:32 (3)	06:50		17:45 (1)	06:38			05:40	05:14
	16:56			17:53	19	16:51 (3)	18:45	35	18:20 (1)	20:40			21:31	22:05
18	08:41			07:51		16:36 (3)	06:48		17:44 (1)	06:36			05:39	05:14
	16:57			17:55	12	16:48 (3)	18:47	37	18:21 (1)	20:41			21:32	22:05
19	08:40			07:49			06:46		17:44 (1)	06:34			05:37	05:14
	16:59			17:57			18:49	39	18:23 (1)	20:43			21:34	22:06
20	08:39		16:26 (3)	07:47			06:43		17:43 (1)	06:31			05:36	05:14
	17:01	1	16:27 (3)	17:59			18:50	41	18:24 (1)	20:45			21:35	22:06
21	08:37		16:25 (3)	07:45			06:41		17:44 (1)	06:29			05:34	05:14
	17:03	4	16:29 (3)	18:01			18:52	41	18:25 (1)	20:47			21:37	22:06
22	08:36		16:25 (3)	07:42			06:39		17:44 (1)	06:27			05:33	05:14
	17:04	7	16:32 (3)	18:03			18:54	41	18:25 (1)	20:48			21:38	22:06
23	08:35		16:23 (3)	07:40			06:36		17:44 (1)	06:25			05:32	05:15
	17:06	10	16:33 (3)	18:05			18:56	40	18:24 (1)	20:50			21:40	22:06
24	08:34		16:23 (3)	07:38			06:34		17:45 (1)	06:23			05:30	05:15
	17:08	13	16:36 (3)	18:07			18:57	38	18:23 (1)	20:52			21:41	22:07
25	08:32		16:22 (3)	07:36			06:31		17:44 (1)	06:21			05:29	05:15
	17:10	15	16:37 (3)	18:08			18:59	37	18:21 (1)	20:54			21:43	22:07
26	08:31		16:22 (3)	07:34		17:42 (2)	06:29		17:45 (1)	06:19			05:28	05:16
	17:12	18	16:40 (3)	18:10	1	17:43 (2)	19:01	36	18:21 (1)	20:55			21:44	22:07
27	08:30		16:21 (3)	07:32		17:41 (2)	06:27		17:47 (1)	06:17			05:27	05:16
	17:13	20	16:41 (3)	18:12	5	17:46 (2)	19:03	32	18:19 (1)	20:57			21:45	22:07
28	08:28		16:22 (3)	07:29		17:39 (2)	06:24		17:47 (1)	06:14			05:26	05:17
	17:15	22	16:44 (3)	18:14	8	17:47 (2)	19:05	30	18:17 (1)	20:59			21:47	22:06
29	08:27		16:21 (3)				07:22		18:49 (1)	06:12			05:25	05:17
	17:17	24	16:45 (3)				20:06	27	19:16 (1)	21:01			21:48	22:06
30	08:25		16:20 (3)				07:20		18:51 (1)	06:10			05:24	05:18
	17:19	27	16:47 (3)				20:08	22	19:13 (1)	21:02			21:49	22:06
31	08:24		16:21 (3)				07:17		18:53 (1)				05:23	
	17:21	29	16:50 (3)				20:10	17	19:10 (1)				21:50	
Potential sun hours	256			276			367			418			489	503
Total, worst case		190			592			880			3			
Sun reduction		0.16			0.21			0.24			0.35			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.62			0.63			0.67			0.67			
Total reduction		0.10			0.13			0.16			0.24			
Total, real		19			77			143			1			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** Q - H17

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September			October			November			December	
1	05:18		05:56		06:48			07:38		18:24 (2)	07:34		15:52 (3)	08:26	
	22:06		21:33		20:29			19:18	26	18:50 (1)	17:10	37	16:29 (3)	16:28	
2	05:19		05:58		06:49			07:40		18:20 (2)	07:36		15:52 (3)	08:28	
	22:05		21:31		20:26			19:15	27	18:47 (1)	17:08	37	16:29 (3)	16:27	
3	05:20		05:59		06:51			07:42		18:18 (2)	07:37		15:51 (3)	08:29	
	22:05		21:29		20:24			19:13	27	18:45 (1)	17:06	39	16:30 (3)	16:27	
4	05:21		06:01		06:53			07:43		18:16 (2)	07:39		15:51 (3)	08:30	
	22:05		21:27		20:22			19:11	27	18:43 (1)	17:04	39	16:30 (3)	16:26	
5	05:21		06:03		06:54			07:45		18:15 (2)	07:41		15:51 (3)	08:32	
	22:04		21:26		20:20			19:08	26	18:41 (1)	17:02	39	16:30 (3)	16:26	
6	05:22		06:04		06:56			07:47		18:14 (2)	07:43		15:51 (3)	08:33	
	22:03		21:24		20:17			19:06	24	18:38 (2)	17:01	39	16:30 (3)	16:25	
7	05:23		06:06		06:58			07:49		18:13 (2)	07:45		15:51 (3)	08:34	
	22:03		21:22		20:15			19:04	22	18:35 (2)	16:59	37	16:28 (3)	16:25	
8	05:24		06:07		06:59			07:50		18:12 (2)	07:47		15:51 (3)	08:36	
	22:02		21:20		20:12			19:01	21	18:33 (2)	16:57	35	16:26 (3)	16:24	
9	05:25		06:09		07:01			07:52		18:12 (2)	07:48		15:51 (3)	08:37	
	22:01		21:18		20:10			18:59	19	18:31 (2)	16:56	33	16:24 (3)	16:24	
10	05:26		06:11		07:03			07:54		18:12 (2)	07:50		15:51 (3)	08:38	
	22:01		21:16		20:08			18:57	17	18:29 (2)	16:54	31	16:22 (3)	16:24	
11	05:27		06:12		07:04			07:56		18:12 (2)	07:52		15:52 (3)	08:39	
	22:00		21:14		20:05			18:54	15	18:27 (2)	16:52	29	16:21 (3)	16:24	
12	05:28		06:14		07:06		18:46 (1)	07:57		18:11 (2)	07:54		15:52 (3)	08:40	
	21:59		21:12		20:03	15	19:01 (1)	18:52	12	18:23 (2)	16:51	27	16:19 (3)	16:23	
13	05:29		06:16		07:08		18:42 (1)	07:59		18:12 (2)	07:56		15:53 (3)	08:41	
	21:58		21:10		20:01	21	19:03 (1)	18:50	9	18:21 (2)	16:49	24	16:17 (3)	16:23	
14	05:31		06:17		07:09		18:40 (1)	08:01		18:12 (2)	07:58		15:54 (3)	08:42	
	21:57		21:08		19:58	26	19:06 (1)	18:48	7	18:19 (2)	16:48	22	16:16 (3)	16:23	
15	05:32		06:19		07:11		18:38 (1)	08:03		18:13 (2)	07:59		15:54 (3)	08:43	
	21:56		21:06		19:56	29	19:07 (1)	18:45	4	18:17 (2)	16:46	20	16:14 (3)	16:23	
16	05:33		06:21		07:13		18:35 (1)	08:04			08:01		15:55 (3)	08:44	
	21:55		21:04		19:53	33	19:08 (1)	18:43			16:45	17	16:12 (3)	16:24	
17	05:34		06:22		07:14		18:34 (1)	08:06			08:03		15:56 (3)	08:45	
	21:54		21:02		19:51	35	19:09 (1)	18:41			16:43	15	16:11 (3)	16:24	
18	05:36		06:24		07:16		18:33 (1)	08:08			08:05		15:57 (3)	08:46	
	21:53		21:00		19:49	37	19:10 (1)	18:39			16:42	12	16:09 (3)	16:24	
19	05:37		06:26		07:18		18:31 (1)	08:10			08:07		15:58 (3)	08:46	
	21:52		20:58		19:46	38	19:09 (1)	18:37			16:40	10	16:08 (3)	16:24	
20	05:38		06:27		07:19		18:30 (1)	08:12			08:08		16:00 (3)	08:47	
	21:50		20:56		19:44	40	19:10 (1)	18:34			16:39	7	16:07 (3)	16:25	
21	05:40		06:29		07:21		18:30 (1)	08:13			08:10		16:01 (3)	08:48	
	21:49		20:53		19:42	41	19:11 (1)	18:32			16:38	4	16:05 (3)	16:25	
22	05:41		06:31		07:23		18:28 (1)	08:15			08:12		16:03 (3)	08:48	
	21:48		20:51		19:39	42	19:10 (1)	18:30			16:37	1	16:04 (3)	16:25	
23	05:43		06:32		07:25		18:28 (1)	08:17			08:13			08:49	
	21:46		20:49		19:37	41	19:09 (1)	18:28			16:36			16:26	
24	05:44		06:34		07:26		18:28 (1)	08:19		17:04 (3)	08:15			08:49	
	21:45		20:47		19:34	39	19:07 (1)	18:26	14	17:18 (3)	16:34			16:27	
25	05:45		06:36		07:28		18:27 (1)	07:21		16:01 (3)	08:17			08:49	
	21:44		20:45		19:32	37	19:04 (1)	17:24	20	16:21 (3)	16:33			16:27	
26	05:47		06:37		07:30		18:27 (1)	07:23		15:59 (3)	08:18			08:50	
	21:42		20:42		19:30	35	19:02 (1)	17:22	24	16:23 (3)	16:32			16:28	
27	05:48		06:39		07:31		18:27 (1)	07:24		15:57 (3)	08:20			08:50	
	21:41		20:40		19:27	33	19:00 (1)	17:20	27	16:24 (3)	16:31			16:29	
28	05:50		06:41		07:33		18:27 (1)	07:26		15:56 (3)	08:22			08:50	
	21:39		20:38		19:25	31	18:58 (1)	17:18	30	16:26 (3)	16:31			16:29	
29	05:51		06:43		07:35		18:27 (1)	07:28		15:55 (3)	08:23			08:50	
	21:38		20:36		19:22	28	18:55 (1)	17:16	32	16:27 (3)	16:30			16:30	
30	05:53		06:44		07:36		18:27 (1)	07:30		15:54 (3)	08:25			08:50	
	21:36		20:33		19:20	25	18:52 (1)	17:14	33	16:27 (3)	16:29			16:31	
31	05:55		06:46					07:32		15:53 (3)				08:50	
	21:34		20:31					17:12	35	16:28 (3)				16:32	
Potential sun hours	506		456		381			330			263			240	
Total, worst case						626			498			554			
Sun reduction						0.28			0.24			0.19			
Oper. time red.						1.00			1.00			1.00			
Wind dir. red.						0.67			0.65			0.62			
Total reduction						0.19			0.15			0.12			
Total, real						119			77			65			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** R - H18

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		14:48 (1)	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34			08:26		14:40 (1)
	16:34	56	15:58 (2)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	47	15:50 (2)
2	08:50		14:48 (1)	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36			08:28		14:40 (1)
	16:35	55	15:58 (2)	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08			16:27	50	15:51 (2)
3	08:50		14:49 (1)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		14:39 (1)
	16:36	56	16:00 (2)	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	52	15:51 (2)
4	08:50		14:50 (1)	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:30		14:39 (1)
	16:37	56	16:02 (2)	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	55	15:52 (2)
5	08:50		14:51 (1)	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41			08:32		14:38 (1)
	16:38	54	16:02 (2)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02			16:26	54	15:50 (2)
6	08:49		14:52 (1)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		14:38 (1)
	16:39	55	16:04 (2)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	55	15:50 (2)
7	08:49		14:53 (1)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:34		14:38 (1)
	16:41	54	16:05 (2)	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59			16:25	55	15:49 (2)
8	08:48		14:55 (1)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		14:37 (1)
	16:42	54	16:07 (2)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57			16:24	56	15:49 (2)
9	08:48		14:56 (1)	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		14:38 (1)
	16:43	52	16:08 (2)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	56	15:49 (2)
10	08:47		14:57 (1)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		14:38 (1)
	16:45	50	16:08 (2)	17:40	18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54			16:24	55	15:48 (2)
11	08:47		14:58 (1)	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		14:38 (1)
	16:46	48	16:08 (2)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52			16:24	56	15:48 (2)
12	08:46		15:00 (1)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		14:38 (1)
	16:48	43	16:07 (2)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:23	55	15:48 (2)
13	08:45		15:02 (1)	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56			08:41		14:38 (1)
	16:49	39	16:07 (2)	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49			16:23	55	15:47 (2)
14	08:44		15:05 (1)	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		14:38 (1)
	16:51	32	16:07 (2)	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	55	15:47 (2)
15	08:44		15:45 (2)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59			08:43		14:39 (1)
	16:53	22	16:07 (2)	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46			16:23	54	15:47 (2)
16	08:43		15:46 (2)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01			08:44		14:39 (1)
	16:54	21	16:07 (2)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45			16:24	55	15:48 (2)
17	08:42		15:47 (2)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03			08:45		14:39 (1)
	16:56	19	16:06 (2)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	56	15:48 (2)
18	08:41		15:49 (2)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05			08:46		14:39 (1)
	16:57	17	16:06 (2)	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42			16:24	55	15:47 (2)
19	08:40		15:51 (2)	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07			08:46		14:40 (1)
	16:59	14	16:05 (2)	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40			16:24	55	15:48 (2)
20	08:39		15:54 (2)	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08			08:47		14:41 (1)
	17:01	10	16:04 (2)	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39			16:25	55	15:49 (2)
21	08:37		15:58 (2)	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10			08:48		14:40 (1)
	17:03	1	15:59 (2)	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38			16:25	56	15:49 (2)
22	08:36			07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12		15:30 (2)	08:48		14:41 (1)
	17:04			18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	10	15:40 (2)	16:25	55	15:49 (2)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13		15:27 (2)	08:49		14:42 (1)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	14	15:41 (2)	16:26	55	15:50 (2)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15		15:26 (2)	08:49		14:42 (1)
	17:08			18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	17	15:43 (2)	16:27	55	15:50 (2)
25	08:32			07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17		15:25 (2)	08:49		14:43 (1)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	19	15:44 (2)	16:27	55	15:51 (2)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18		15:25 (2)	08:50		14:43 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32	21	15:46 (2)	16:28	56	15:52 (2)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20		15:25 (2)	08:50		14:44 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	22	15:47 (2)	16:29	54	15:52 (2)
28	08:28			07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22		14:46 (1)	08:50		14:44 (1)
	17:15			18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	31	15:47 (2)	16:29	55	15:53 (2)
29	08:27				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23		14:43 (1)	08:50		14:45 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	39	15:48 (2)	16:30	56	15:54 (2)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25		14:42 (1)	08:50		14:46 (1)
	17:19				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	44	15:50 (2)	16:31	55	15:55 (2)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:50		14:46 (1)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	56	15:56 (2)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		808												217			1694	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.61												0.62			0.61	
Total reduction		0.10												0.11			0.08	
Total, real		78												25			141	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April		May		June	
1	08:50	08:22	07:27	07:15		06:08		05:22	
	16:34	17:23	18:16	20:12		21:04	35	21:51	18
2	08:50	08:21	07:25	07:13		06:06		05:21	
	16:35	17:25	18:18	20:13		21:06	30	21:53	19
3	08:50	08:19	07:23	07:10		06:05		05:20	
	16:36	17:27	18:20	20:15		21:08	28	21:54	21
4	08:50	08:17	07:20	07:08		06:03		05:19	
	16:37	17:28	18:21	20:17		21:09	25	21:55	21
5	08:49	08:15	07:18	07:05		06:01		05:18	
	16:38	17:30	18:23	20:19		21:11	21	21:56	22
6	08:49	08:14	07:16	07:03		05:59		05:18	
	16:39	17:32	18:25	20:20		21:13	18	21:57	23
7	08:49	08:12	07:14	07:01		05:57		05:17	
	16:41	17:34	18:27	20:22		21:14	12	21:58	24
8	08:48	08:10	07:11	06:59		05:55		05:17	
	16:42	17:36	18:29	20:24		21:16		21:59	24
9	08:48	08:08	07:09	06:56		05:53		05:16	
	16:43	17:38	18:31	20:26		21:18		22:00	25
10	08:47	08:06	07:07	06:54		05:52		05:16	
	16:45	17:40	18:32	20:27	4	21:19		22:00	25
11	08:47	08:05	07:04	06:52		05:50		05:15	
	16:46	17:42	18:34	20:29	8	21:21		22:01	26
12	08:46	08:03	07:02	06:49		05:48		05:15	
	16:48	17:44	18:36	20:31	11	21:23		22:02	26
13	08:45	08:01	07:00	06:47		05:46		05:15	
	16:49	17:46	18:38	20:33	15	21:24		22:03	27
14	08:44	07:59	06:57	06:45		05:45		05:14	
	16:51	17:48	18:40	20:34	18	21:26		22:03	27
15	08:43	07:57	06:55	06:43		05:43		05:14	
	16:53	17:49	18:41	20:36	21	21:28		22:04	27
16	08:43	07:55	06:53	06:40		05:42		05:14	
	16:54	17:51	18:43	20:38	24	21:29		22:04	28
17	08:42	07:53	06:50	06:38		05:40		05:14	
	16:56	17:53	18:45	20:40	26	21:31		22:05	27
18	08:41	07:51	06:48	06:36		05:39		05:14	
	16:57	17:55	18:47	20:41	28	21:32		22:05	28
19	08:40	07:49	06:46	06:34		05:37		05:14	
	16:59	17:57	18:49	20:43	30	21:34		22:06	28
20	08:39	07:47	06:43	06:31		05:36		05:14	
	17:01	17:59	18:50	20:45	33	21:35		22:06	28
21	08:37	07:45	06:41	06:29		05:34		05:14	
	17:03	18:01	18:52	20:47	35	21:37	2	22:06	28
22	08:36	07:42	06:39	06:27		05:33		05:14	
	17:04	18:03	18:54	20:48	36	21:38	4	22:06	28
23	08:35	07:40	06:36	06:25		05:32		05:15	
	17:06	18:05	18:56	20:50	38	21:40	6	22:06	28
24	08:34	07:38	06:34	06:23		05:30		05:15	
	17:08	18:07	18:57	20:52	40	21:41	7	22:07	28
25	08:32	07:36	06:31	06:21		05:29		05:15	
	17:10	18:08	18:59	20:54	41	21:43	9	22:07	27
26	08:31	07:34	06:29	06:19		05:28		05:16	
	17:12	18:10	19:01	20:55	43	21:44	11	22:07	28
27	08:30	07:32	06:27	06:17		05:27		05:16	
	17:13	18:12	19:03	20:57	45	21:45	12	22:07	27
28	08:28	07:29	06:24	06:14		05:26		05:17	
	17:15	18:14	19:05	20:59	42	21:47	13	22:06	27
29	08:27		07:22	06:12		05:25		05:17	
	17:17		20:06	21:01	41	21:48	14	22:06	27
30	08:25		07:20	06:10		05:24		05:18	
	17:19		20:08	21:02	38	21:49	16	22:06	26
31	08:24		07:17			05:23			
	17:21		20:10			21:50	17		
Potential sun hours	256	276	367	418		488		503	
Total, worst case					617		280		768
Sun reduction					0.35		0.37		0.30
Oper. time red.					1.00		1.00		1.00
Wind dir. red.					0.67		0.67		0.65
Total reduction					0.24		0.24		0.19
Total, real					147		68		149

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** S - H19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October	November	December
1	05:18		21:06 (1)	05:56		19:53 (3)	07:38	07:34	08:26
	22:06	26	21:32 (1)	21:33	20:29	8 20:01 (3)	19:18	17:10	16:28
2	05:19		21:06 (1)	05:58	06:49	19:55 (3)	07:40	07:35	08:28
	22:05	26	21:32 (1)	21:31	20:26	4 19:59 (3)	19:15	17:08	16:27
3	05:20		21:06 (1)	05:59	06:51		07:42	07:37	08:29
	22:05	25	21:31 (1)	21:29	20:24		19:13	17:06	16:27
4	05:21		21:06 (1)	06:01	06:53		07:43	07:39	08:30
	22:05	24	21:30 (1)	21:27	20:22		19:11	17:04	16:26
5	05:21		21:06 (1)	06:03	20:09 (3)	06:54	07:45	07:41	08:32
	22:04	24	21:30 (1)	21:26	6 20:15 (3)	20:19	19:08	17:02	16:26
6	05:22		21:07 (1)	06:04	20:05 (3)	06:56	07:47	07:43	08:33
	22:03	23	21:30 (1)	21:24	14 20:19 (3)	20:17	19:06	17:01	16:25
7	05:23		21:07 (1)	06:06	20:03 (3)	06:58	07:49	07:45	08:34
	22:03	22	21:29 (1)	21:22	19 20:22 (3)	20:15	19:04	16:59	16:25
8	05:24		21:07 (1)	06:07	20:01 (3)	06:59	07:50	07:47	08:36
	22:02	22	21:29 (1)	21:20	23 20:24 (3)	20:12	19:01	16:57	16:24
9	05:25		21:07 (1)	06:09	19:59 (3)	07:01	07:52	07:48	08:37
	22:01	20	21:27 (1)	21:18	26 20:25 (3)	20:10	18:59	16:56	16:24
10	05:26		21:07 (1)	06:11	19:57 (3)	07:03	07:54	07:50	08:38
	22:01	20	21:27 (1)	21:16	29 20:26 (3)	20:08	18:57	16:54	16:24
11	05:27		21:07 (1)	06:12	19:56 (3)	07:04	07:56	07:52	08:39
	22:00	19	21:26 (1)	21:14	31 20:27 (3)	20:05	18:54	16:52	16:24
12	05:28		21:07 (1)	06:14	19:55 (3)	07:06	07:57	07:54	08:40
	21:59	18	21:25 (1)	21:12	36 20:31 (2)	20:03	18:52	16:51	16:24
13	05:30		21:09 (1)	06:16	19:54 (3)	07:08	07:59	07:56	08:41
	21:58	16	21:25 (1)	21:10	39 20:33 (2)	20:01	18:50	16:49	16:23
14	05:31		21:09 (1)	06:17	19:53 (3)	07:09	08:01	07:58	08:42
	21:57	15	21:24 (1)	21:08	41 20:34 (2)	19:58	18:48	16:48	16:23
15	05:32		21:09 (1)	06:19	19:52 (3)	07:11	08:03	07:59	08:43
	21:56	14	21:23 (1)	21:06	43 20:35 (2)	19:56	18:45	16:46	16:23
16	05:33		21:09 (1)	06:21	19:52 (3)	07:13	08:04	08:01	08:44
	21:55	13	21:22 (1)	21:04	44 20:36 (2)	19:53	18:43	16:45	16:24
17	05:34		21:10 (1)	06:22	19:51 (3)	07:14	08:06	08:03	08:45
	21:54	11	21:21 (1)	21:02	42 20:33 (2)	19:51	18:41	16:43	16:24
18	05:36		21:10 (1)	06:24	19:51 (3)	07:16	08:08	08:05	08:45
	21:53	10	21:20 (1)	21:00	41 20:32 (2)	19:49	18:39	16:42	16:24
19	05:37		21:11 (1)	06:26	19:50 (3)	07:18	08:10	08:06	08:46
	21:52	9	21:20 (1)	20:58	39 20:29 (2)	19:46	18:37	16:40	16:24
20	05:38		21:12 (1)	06:27	19:50 (3)	07:19	08:12	08:08	08:47
	21:50	6	21:18 (1)	20:56	37 20:27 (2)	19:44	18:34	16:39	16:25
21	05:40		21:12 (1)	06:29	19:49 (3)	07:21	08:13	08:10	08:47
	21:49	5	21:17 (1)	20:53	36 20:25 (2)	19:41	18:32	16:38	16:25
22	05:41		21:12 (1)	06:31	19:49 (3)	07:23	08:15	08:12	08:48
	21:48	3	21:15 (1)	20:51	34 20:23 (2)	19:39	18:30	16:37	16:25
23	05:43		21:14 (1)	06:32	19:49 (3)	07:25	08:17	08:13	08:48
	21:46	1	21:15 (1)	20:49	32 20:21 (2)	19:37	18:28	16:36	16:26
24	05:44			06:34	19:48 (3)	07:26	08:19	08:15	08:49
	21:45			20:47	31 20:19 (2)	19:34	18:26	16:35	16:27
25	05:45			06:36	19:49 (3)	07:28	07:21	08:17	08:49
	21:44			20:45	28 20:17 (2)	19:32	17:24	16:33	16:27
26	05:47			06:37	19:49 (3)	07:30	07:23	08:18	08:50
	21:42			20:42	25 20:14 (2)	19:30	17:22	16:32	16:28
27	05:48			06:39	19:49 (3)	07:31	07:24	08:20	08:50
	21:41			20:40	23 20:12 (3)	19:27	17:20	16:31	16:29
28	05:50			06:41	19:50 (3)	07:33	07:26	08:22	08:50
	21:39			20:38	21 20:11 (3)	19:25	17:18	16:31	16:30
29	05:51			06:43	19:50 (3)	07:35	07:28	08:23	08:50
	21:37			20:36	18 20:08 (3)	19:22	17:16	16:30	16:30
30	05:53			06:44	19:51 (3)	07:36	07:30	08:25	08:50
	21:36			20:33	15 20:06 (3)	19:20	17:14	16:29	16:31
31	05:55			06:46	19:51 (3)		07:32		08:50
	21:34			20:31	12 20:03 (3)		17:12		16:32
Potential sun hours	506			456		381	330	263	240
Total, worst case		372			785		12			
Sun reduction		0.26			0.30		0.28			
Oper. time red.		1.00			1.00		1.00			
Wind dir. red.		0.65			0.67		0.67			
Total reduction		0.17			0.20		0.19			
Total, real		64			156		2			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** T - H20

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October		November		December	
1	08:50		09:33 (3)		08:22		08:52 (1)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:28 (1)	08:26		09:23 (3)
	16:34	26	09:59 (3)	17:23	37	09:29 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	25	08:53 (1)	16:28	18	09:41 (3)
2	08:50		09:34 (3)	08:21		08:52 (1)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:27 (1)	08:28		09:23 (3)
	16:35	26	10:00 (3)	17:25	37	09:29 (1)	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15		17:08	28	08:55 (1)	16:27	19	09:42 (3)
3	08:50		09:34 (3)	08:19		08:53 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:37		08:26 (1)	08:29		09:22 (3)
	16:36	25	09:59 (3)	17:27	37	09:30 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	30	08:56 (1)	16:27	21	09:43 (3)
4	08:50		09:35 (3)	08:17		08:54 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		08:25 (1)	08:31		09:22 (3)
	16:37	25	10:00 (3)	17:28	35	09:29 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	32	08:57 (1)	16:26	22	09:44 (3)
5	08:50		09:35 (3)	08:16		08:54 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45		07:41		08:24 (1)	08:32		09:22 (3)
	16:38	24	09:59 (3)	17:30	35	09:29 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	34	08:58 (1)	16:26	23	09:45 (3)
6	08:49		09:36 (3)	08:14		08:55 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:24 (1)	08:33		09:22 (3)
	16:39	24	10:00 (3)	17:32	33	09:28 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06		17:01	34	08:58 (1)	16:25	24	09:46 (3)
7	08:49		09:37 (3)	08:12		08:55 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:23 (1)	08:35		09:22 (3)
	16:41	23	10:00 (3)	17:34	32	09:27 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	36	08:59 (1)	16:25	24	09:46 (3)
8	08:48		09:38 (3)	08:10		08:56 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50		07:47		08:23 (1)	08:36		09:22 (3)
	16:42	22	10:00 (3)	17:36	30	09:26 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	37	09:00 (1)	16:24	25	09:47 (3)
9	08:48		09:39 (3)	08:08		08:58 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:23 (1)	08:37		09:23 (3)
	16:44	21	10:00 (3)	17:38	27	09:25 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	37	09:00 (1)	16:24	25	09:48 (3)
10	08:47		09:40 (3)	08:07		08:59 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:23 (1)	08:38		09:23 (3)
	16:45	19	09:59 (3)	17:40	25	09:24 (1)	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57		16:54	37	09:00 (1)	16:24	26	09:49 (3)
11	08:47		09:41 (3)	08:05		09:01 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52		08:23 (1)	08:39		09:23 (3)
	16:46	18	09:59 (3)	17:42	21	09:22 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55		16:52	38	09:01 (1)	16:24	26	09:49 (3)
12	08:46		09:42 (3)	08:03		09:03 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57		07:54		08:24 (1)	08:40		09:23 (3)
	16:48	16	09:58 (3)	17:44	16	09:19 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	37	09:01 (1)	16:24	27	09:50 (3)
13	08:45		09:15 (1)	08:01		09:07 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		08:26 (1)	08:41		09:23 (3)
	16:49	14	09:57 (3)	17:46	8	09:15 (1)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50		16:49	35	09:01 (1)	16:23	27	09:50 (3)
14	08:44		09:15 (1)	07:59			06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01		07:58		08:28 (1)	08:42		09:24 (3)
	16:51	12	09:56 (3)	17:48			18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48	33	09:01 (1)	16:23	27	09:51 (3)
15	08:44		09:13 (1)	07:57			06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:30 (1)	08:43		09:24 (3)
	16:53	8	09:52 (3)	17:50			18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:45		16:46	31	09:01 (1)	16:24	28	09:52 (3)
16	08:43		09:12 (1)	07:55			06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:32 (1)	08:44		09:25 (3)
	16:54	8	09:20 (1)	17:51			18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45	29	09:01 (1)	16:24	27	09:52 (3)
17	08:42		09:11 (1)	07:53			06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06		08:03		08:34 (1)	08:45		09:25 (3)
	16:56	10	09:21 (1)	17:53			18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43	27	09:01 (1)	16:24	28	09:53 (3)
18	08:41		09:10 (1)	07:51			06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:36 (1)	08:46		09:25 (3)
	16:57	12	09:22 (1)	17:55			18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42	25	09:01 (1)	16:24	28	09:53 (3)
19	08:40		09:09 (1)	07:49			06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:38 (1)	08:46		09:26 (3)
	16:59	14	09:23 (1)	17:57			18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41	23	09:01 (1)	16:24	28	09:54 (3)
20	08:39		09:08 (1)	07:47			06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12		08:08		08:40 (1)	08:47		09:26 (3)
	17:01	17	09:25 (1)	17:59			18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39	21	09:01 (1)	16:25	28	09:54 (3)
21	08:38		09:06 (1)	07:45			06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:42 (1)	08:48		09:26 (3)
	17:03	19	09:25 (1)	18:01			18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38	19	09:01 (1)	16:25	28	09:54 (3)
22	08:36		09:05 (1)	07:43			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12		08:44 (1)	08:48		09:27 (3)
	17:04	21	09:26 (1)	18:03			18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30		16:37	17	09:01 (1)	16:26	28	09:55 (3)
23	08:35		09:03 (1)	07:40			06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17		08:13		08:45 (1)	08:49		09:27 (3)
	17:06	23	09:26 (1)	18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36	14	08:59 (1)	16:26	28	09:55 (3)
24	08:34		09:02 (1)	07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15		08:47 (1)	08:49		09:29 (3)
	17:08	25	09:27 (1)	18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35	12	08:59 (1)	16:27	27	09:56 (3)
25	08:33		09:01 (1)	07:36			06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21		08:17		08:49 (1)	08:49		09:29 (3)
	17:10	27	09:28 (1)	18:08			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:33	10	08:59 (1)	16:27	28	09:57 (3)
26	08:31		08:59 (1)	07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:18		08:51 (1)	08:50		09:29 (3)
	17:12	29	09:28 (1)	18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:32	8	08:59 (1)	16:28	28	09:57 (3)
27	08:30		08:57 (1)	07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25		08:20		08:53 (1)	08:50		09:29 (3)
	17:13	31	09:28 (1)	18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20		16:32	6	08:59 (1)	16:29	28	09:57 (3)
28	08:28		08:56 (1)	07:29			06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26		08:22		08:54 (1)	08:50		09:30 (3)
	17:15	33	09:29 (1)	18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18		16:31	12	09:35 (3)	16:30	27	09:57 (3)
29	08:27		08:54 (1)				07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:35 (1)	08:23		08:56 (1)	08:50		09:31 (3)
	17:17	35	09:29 (1)				20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	11 08:46 (1)	16:30	14	09:38 (3)	16:30	27	09:58 (3)
30	08:25		08:53 (1)				07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:32 (1)	08:25		09:24 (3)	08:50		09:31 (3)
	17:19	37	09:30 (1)				20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	17 08:49 (1)	16:29	16	09:40 (3)	16:31	27	09:58 (3)
31	08:24		08:52 (1)				07:17		05:23		05:55	06:46		07:32	08:30 (1)				08:50		09:32 (3)
	17:21	38	09:30 (1)				20:10		21:50		21:34	20:31		17:12	22 08:52 (1)				16:32	27	09:59 (3)
Potential sun hours	256		276		367	418	489	503	506	456	381	330		263		240					
Total, worst case	682		373									50		757		804					
Sun reduction	0.16		0.21									0.24		0.19		0.14					
Oper. time red.	1.00		1.00									1.00		1.00		1.00					
Wind dir. red.	0.65		0.65									0.65		0.65		0.63					
Total reduction	0.10		0.14									0.16		0.12		0.09					
Total, real	69		51									8		92		70					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare County Council Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** U - H21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		14:43 (1)	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34			08:26		15:19 (2)
	16:34	48	15:56 (2)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	20	15:39 (2)
2	08:50		14:43 (1)	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36			08:28		15:19 (2)
	16:35	47	15:56 (2)	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08			16:27	21	15:40 (2)
3	08:50		14:45 (1)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		15:18 (2)
	16:36	45	15:57 (2)	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	23	15:41 (2)
4	08:50		14:47 (1)	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:30		15:19 (2)
	16:37	42	15:57 (2)	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	23	15:42 (2)
5	08:50		14:48 (1)	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41			08:32		15:18 (2)
	16:38	39	15:57 (2)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02			16:26	24	15:42 (2)
6	08:49		14:51 (1)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		14:38 (1)
	16:39	35	15:58 (2)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	33	15:44 (2)
7	08:49		15:33 (2)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:34		14:36 (1)
	16:41	24	15:57 (2)	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59			16:25	37	15:44 (2)
8	08:48		15:35 (2)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		14:34 (1)
	16:42	23	15:58 (2)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57			16:24	42	15:44 (2)
9	08:48		15:35 (2)	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		14:34 (1)
	16:43	23	15:58 (2)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	45	15:46 (2)
10	08:47		15:36 (2)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		14:34 (1)
	16:45	21	15:57 (2)	17:40	18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54			16:24	46	15:46 (2)
11	08:47		15:37 (2)	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		14:33 (1)
	16:46	20	15:57 (2)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52			16:24	48	15:47 (2)
12	08:46		15:38 (2)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		14:33 (1)
	16:48	18	15:56 (2)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:23	49	15:47 (2)
13	08:45		15:39 (2)	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56			08:41		14:33 (1)
	16:49	17	15:56 (2)	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49			16:23	50	15:47 (2)
14	08:44		15:41 (2)	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		14:33 (1)
	16:51	14	15:55 (2)	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	51	15:47 (2)
15	08:44		15:43 (2)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59			08:43		14:33 (1)
	16:53	11	15:54 (2)	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46			16:23	51	15:47 (2)
16	08:43		15:45 (2)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01			08:44		14:33 (1)
	16:54	7	15:52 (2)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45			16:24	53	15:48 (2)
17	08:42			07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03			08:45		14:33 (1)
	16:56			17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	53	15:48 (2)
18	08:41			07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05			08:46		14:33 (1)
	16:57			17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42			16:24	51	15:47 (2)
19	08:40			07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07			08:46		14:34 (1)
	16:59			17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40			16:24	52	15:48 (2)
20	08:39			07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08			08:47		14:34 (1)
	17:01			17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39			16:25	53	15:49 (2)
21	08:37			07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10			08:48		14:34 (1)
	17:03			18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38			16:25	53	15:49 (2)
22	08:36			07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12			08:48		14:35 (1)
	17:04			18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37			16:25	52	15:49 (2)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13			08:49		14:35 (1)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36			16:26	53	15:50 (2)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15			08:49		14:35 (1)
	17:08			18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34			16:27	53	15:50 (2)
25	08:32			07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17			08:49		14:37 (1)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33			16:27	51	15:51 (2)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18		15:25 (2)	08:50		14:37 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32	6	15:31 (2)	16:28	53	15:52 (2)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20		15:23 (2)	08:50		14:38 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	11	15:34 (2)	16:29	52	15:52 (2)
28	08:28			07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22		15:21 (2)	08:50		14:38 (1)
	17:15			18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	14	15:35 (2)	16:29	52	15:53 (2)
29	08:27				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23		15:20 (2)	08:50		14:39 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	17	15:37 (2)	16:30	52	15:54 (2)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25		15:20 (2)	08:50		14:40 (1)
	17:19				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	18	15:38 (2)	16:31	51	15:55 (2)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:50		14:41 (1)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	51	15:56 (2)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		434												66			1398	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.61												0.62			0.61	
Total reduction		0.10												0.12			0.08	
Total, real		42												8			117	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare County Council Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** V - H22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		15:27 (2)	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34			08:26		15:19 (2)
	16:34	24	15:51 (2)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	12	15:31 (2)
2	08:50		15:27 (2)	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36			08:28		15:18 (2)
	16:35	23	15:50 (2)	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08			16:27	15	15:33 (2)
3	08:50		15:28 (2)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		15:17 (2)
	16:36	23	15:51 (2)	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	17	15:34 (2)
4	08:50		15:29 (2)	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:30		15:17 (2)
	16:37	22	15:51 (2)	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	18	15:35 (2)
5	08:50		15:29 (2)	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41			08:32		15:16 (2)
	16:38	22	15:51 (2)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02			16:26	20	15:36 (2)
6	08:49		15:31 (2)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		15:17 (2)
	16:39	20	15:51 (2)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	20	15:37 (2)
7	08:49		15:31 (2)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:34		15:16 (2)
	16:41	20	15:51 (2)	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59			16:25	22	15:38 (2)
8	08:48		15:33 (2)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		15:16 (2)
	16:42	18	15:51 (2)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57			16:24	22	15:38 (2)
9	08:48		15:34 (2)	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		15:17 (2)
	16:43	17	15:51 (2)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	23	15:40 (2)
10	08:47		15:35 (2)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		15:17 (2)
	16:45	15	15:50 (2)	17:40	18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54			16:24	23	15:40 (2)
11	08:47		15:36 (2)	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		15:17 (2)
	16:46	13	15:49 (2)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52			16:24	24	15:41 (2)
12	08:46		15:38 (2)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		15:17 (2)
	16:48	10	15:48 (2)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:23	24	15:41 (2)
13	08:45		15:42 (2)	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56			08:41		14:37 (1)
	16:49	3	15:45 (2)	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49			16:23	30	15:42 (2)
14	08:44			07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		14:36 (1)
	16:51			17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	34	15:43 (2)
15	08:44			07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59			08:43		14:35 (1)
	16:53			17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46			16:23	36	15:43 (2)
16	08:43			07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01			08:44		14:35 (1)
	16:54			17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45			16:24	38	15:44 (2)
17	08:42			07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03			08:45		14:35 (1)
	16:56			17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	39	15:45 (2)
18	08:41			07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05			08:46		14:35 (1)
	16:57			17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42			16:24	38	15:44 (2)
19	08:40			07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07			08:46		14:35 (1)
	16:59			17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40			16:24	40	15:45 (2)
20	08:39			07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08			08:47		14:36 (1)
	17:01			17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39			16:25	40	15:46 (2)
21	08:37			07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10			08:48		14:35 (1)
	17:03			18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38			16:25	42	15:46 (2)
22	08:36			07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12			08:48		14:36 (1)
	17:04			18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37			16:25	42	15:47 (2)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13			08:49		14:37 (1)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36			16:26	40	15:47 (2)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15			08:49		14:37 (1)
	17:08			18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34			16:27	40	15:47 (2)
25	08:32			07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17			08:49		14:38 (1)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33			16:27	40	15:48 (2)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18			08:50		14:39 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32			16:28	39	15:49 (2)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20			08:50		14:40 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31			16:29	38	15:49 (2)
28	08:28			07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22			08:50		14:41 (1)
	17:15			18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31			16:29	36	15:49 (2)
29	08:27				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23		15:23 (2)	08:50		14:42 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	3	15:26 (2)	16:30	34	15:49 (2)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25		15:20 (2)	08:50		14:44 (1)
	17:19				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	10	15:30 (2)	16:31	31	15:50 (2)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:50		15:26 (2)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	24	15:50 (2)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		230												13			941	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.61												0.61			0.61	
Total reduction		0.10												0.11			0.08	
Total, real		22												1			79	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** W - H23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October		November		December	
1	08:50		15:14 (3)	08:22		16:32 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38		07:34		16:01 (1)	08:26		15:05 (3)
	16:34	30	15:44 (3)	17:23	20	16:52 (2)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	39	16:40 (2)	16:28	20	15:25 (3)
2	08:50		15:14 (3)	08:21		16:32 (1)	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40		07:36		16:01 (1)	08:28		15:05 (3)
	16:35	29	15:43 (3)	17:25	22	16:54 (2)	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15		17:08	37	16:38 (2)	16:27	22	15:27 (3)
3	08:50		15:15 (3)	08:19		16:32 (1)	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42		07:37		16:01 (1)	08:29		15:04 (3)
	16:36	29	15:44 (3)	17:26	24	16:56 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	35	16:36 (2)	16:27	23	15:27 (3)
4	08:50		15:16 (3)	08:17		16:32 (1)	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		16:01 (1)	08:30		15:04 (3)
	16:37	28	15:44 (3)	17:28	26	16:58 (2)	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	33	16:34 (2)	16:26	25	15:29 (3)
5	08:50		15:17 (3)	08:16		16:31 (1)	07:18	07:05	06:01	05:18	05:21	06:03	06:54	07:45		07:41		16:01 (1)	08:32		15:04 (3)
	16:38	27	15:44 (3)	17:30	29	17:00 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:02	31	16:32 (2)	16:26	25	15:29 (3)
6	08:49		15:18 (3)	08:14		16:31 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		16:01 (1)	08:33		15:04 (3)
	16:39	26	15:44 (3)	17:32	31	17:02 (2)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06		17:01	29	16:30 (2)	16:25	27	15:31 (3)
7	08:49		15:18 (3)	08:12		16:31 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		16:01 (1)	08:34		15:04 (3)
	16:41	26	15:44 (3)	17:34	33	17:04 (2)	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04		16:59	27	16:28 (2)	16:25	27	15:31 (3)
8	08:48		15:19 (3)	08:10		16:31 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50		07:47		16:02 (1)	08:36		15:04 (3)
	16:42	25	15:44 (3)	17:36	35	17:06 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01		16:57	24	16:26 (2)	16:24	27	15:31 (3)
9	08:48		15:21 (3)	08:08		16:31 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:48		16:02 (1)	08:37		15:04 (3)
	16:43	23	15:44 (3)	17:38	37	17:08 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:55	22	16:24 (2)	16:24	29	15:33 (3)
10	08:47		15:22 (3)	08:07		16:31 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		16:03 (1)	08:38		15:04 (3)
	16:45	22	15:44 (3)	17:40	39	17:10 (2)	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57		16:54	19	16:22 (2)	16:24	29	15:33 (3)
11	08:47		15:23 (3)	08:05		16:32 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52		16:04 (1)	08:39		15:04 (3)
	16:46	20	15:43 (3)	17:42	40	17:12 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54		16:52	17	16:21 (1)	16:24	30	15:34 (3)
12	08:46		15:24 (3)	08:03		16:32 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57		07:54		16:05 (1)	08:40		15:05 (3)
	16:48	19	15:43 (3)	17:44	39	17:11 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	14	16:19 (1)	16:23	29	15:34 (3)
13	08:45		15:25 (3)	08:01		16:32 (1)	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59		07:56		16:06 (1)	08:41		15:05 (3)
	16:49	17	15:42 (3)	17:46	38	17:10 (2)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50		16:49	11	16:17 (1)	16:23	30	15:35 (3)
14	08:44		15:27 (3)	07:59		16:33 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01		07:58		16:07 (1)	08:42		15:05 (3)
	16:51	14	15:41 (3)	17:48	36	17:09 (2)	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48		16:48	9	16:16 (1)	16:23	30	15:35 (3)
15	08:44		15:30 (3)	07:57		16:34 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		07:59		16:08 (1)	08:43		15:06 (3)
	16:52	9	15:39 (3)	17:49	34	17:08 (1)	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45		16:46	6	16:14 (1)	16:23	30	15:36 (3)
16	08:43			07:55		16:35 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04		08:01		16:09 (1)	08:44		15:06 (3)
	16:54			17:51	32	17:07 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43		16:45	3	16:12 (1)	16:24	31	15:37 (3)
17	08:42			07:53		16:36 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06		08:03			08:45		15:07 (3)
	16:56			17:53	30	17:06 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43			16:24	30	15:37 (3)
18	08:41			07:51		16:38 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05			08:46		15:06 (3)
	16:57			17:55	27	17:05 (1)	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39		16:42			16:24	31	15:37 (3)
19	08:40			07:49		16:39 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07			08:46		15:07 (3)
	16:59			17:57	23	17:02 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:40			16:24	31	15:38 (3)
20	08:39			07:47		16:41 (1)	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	17:19 (1)	08:08			08:47		15:08 (3)
	17:01			17:59	19	17:00 (1)	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	4 17:23 (1)	16:39			16:25	31	15:39 (3)
21	08:37			07:45		16:44 (1)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	17:14 (1)	08:10			08:48		15:08 (3)
	17:03			18:01	13	16:57 (1)	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	15 17:29 (1)	16:38			16:25	31	15:39 (3)
22	08:36			07:42			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	17:11 (1)	08:12			08:48		15:09 (3)
	17:04			18:03			18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	20 17:31 (1)	16:37			16:25	31	15:40 (3)
23	08:35			07:40			06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	17:09 (1)	08:13			08:49		15:09 (3)
	17:06			18:05			18:56	20:50	21:40	22:07	21:46	20:49	19:37	18:28	24 17:33 (1)	16:36			16:26	31	15:40 (3)
24	08:34			07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	17:07 (1)	08:15			08:49		15:09 (3)
	17:08			18:07			18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	28 17:35 (1)	16:34			16:27	31	15:40 (3)
25	08:32			07:36			06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	16:05 (1)	08:17			08:49		15:10 (3)
	17:10			18:08			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	31 16:36 (1)	16:33			16:27	31	15:41 (3)
26	08:31		16:36 (1)	07:34			06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	16:04 (1)	08:18			08:50		15:11 (3)
	17:12	4	16:40 (1)	18:10			19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	33 16:37 (1)	16:32			16:28	30	15:41 (3)
27	08:30		16:35 (1)	07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	16:03 (1)	08:20		15:10 (3)	08:50		15:11 (3)
	17:13	6	16:41 (1)	18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	34 16:37 (2)	16:31	9	15:19 (3)	16:29	31	15:42 (3)
28	08:28		16:35 (1)	07:29			06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	16:03 (1)	08:22		15:07 (3)	08:50		15:11 (3)
	17:15	9	16:44 (1)	18:14			19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	36 16:39 (2)	16:31	14	15:21 (3)	16:29	31	15:42 (3)
29	08:27		16:34 (1)				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	16:02 (1)	08:23		15:06 (3)	08:50		15:12 (3)
	17:17	11	16:45 (1)				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	38 16:40 (2)	16:30	17	15:23 (3)	16:30	30	15:42 (3)
30	08:25		16:33 (1)				07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	16:01 (1)	08:25		15:06 (3)	08:50		15:13 (3)
	17:19	14	16:47 (1)				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	40 16:41 (2)	16:29	19	15:25 (3)	16:31	30	15:43 (3)
31	08:24		16:33 (1)				07:17		05:23		05:55	06:46		07:32	16:01 (1)				08:50		15:13 (3)
	17:21	17	16:50 (1)				20:10		21:50		21:34	20:31		17:12	41 16:42 (2)				16:32	30	15:43 (3)
Potential sun hours	256			276		367	418	489	503	506	456	381	330			263			240		
Total, worst case		405			627									344			415			894	
Sun reduction		0.16			0.21									0.24			0.19			0.14	
Oper. time red.		1.00			1.00									1.00			1.00			1.00	
Wind dir. red.		0.61			0.63									0.63			0.63			0.61	
Total reduction		0.10			0.13									0.15			0.12			0.08	
Total, real		39			82									52			49			75	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** X - H24

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	09:23 (3)	08:22	08:49 (1)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:05 (1)	08:26	08:59 (3)
	16:34 43	10:40 (2)	17:23 18	09:07 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10 33	08:38 (1)	16:28 27	09:26 (3)
2	08:50	09:23 (3)	08:21	08:47 (1)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:05 (1)	08:28	09:01 (3)
	16:35 43	10:40 (2)	17:25 20	09:07 (1)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08 33	08:38 (1)	16:27 26	09:27 (3)
3	08:50	09:22 (3)	08:19	08:46 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:06 (1)	08:29	09:02 (3)
	16:36 44	10:40 (2)	17:27 22	09:08 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06 32	08:38 (1)	16:27 35	10:18 (2)
4	08:50	09:22 (3)	08:17	08:44 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:08 (1)	08:31	09:04 (3)
	16:37 43	10:40 (2)	17:28 24	09:08 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04 30	08:38 (1)	16:26 38	10:21 (2)
5	08:50	09:21 (3)	08:16	08:42 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:10 (1)	08:32	09:05 (3)
	16:38 42	10:39 (2)	17:30 27	09:09 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03 28	08:38 (1)	16:26 40	10:23 (2)
6	08:49	09:21 (3)	08:14	08:40 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:12 (1)	08:33	09:07 (3)
	16:39 42	10:39 (2)	17:32 29	09:09 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01 26	08:38 (1)	16:25 41	10:25 (2)
7	08:49	09:20 (3)	08:12	08:38 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:14 (1)	08:35	09:08 (3)
	16:41 40	10:38 (2)	17:34 31	09:09 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59 24	08:38 (1)	16:25 42	10:26 (2)
8	08:48	09:20 (3)	08:10	08:36 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:16 (1)	08:36	09:09 (3)
	16:42 38	10:37 (2)	17:36 33	09:09 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57 22	08:38 (1)	16:24 43	10:27 (2)
9	08:48	09:19 (3)	08:08	08:35 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:18 (1)	08:37	09:11 (3)
	16:44 35	10:35 (2)	17:38 33	09:08 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56 20	08:38 (1)	16:24 43	10:29 (2)
10	08:47	09:18 (3)	08:07	08:35 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:20 (1)	08:38	09:12 (3)
	16:45 29	10:32 (2)	17:40 33	09:08 (1)	18:32	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54 17	08:37 (1)	16:24 44	10:30 (2)
11	08:47	09:17 (3)	08:05	08:36 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:22 (1)	08:39	09:13 (3)
	16:46 27	09:44 (3)	17:42 32	09:08 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52 15	08:37 (1)	16:24 43	10:30 (2)
12	08:46	09:18 (3)	08:03	08:37 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:24 (1)	08:40	09:14 (3)
	16:48 26	09:44 (3)	17:44 30	09:07 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51 12	08:36 (1)	16:24 44	10:31 (2)
13	08:45	09:18 (3)	08:01	08:37 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:26 (1)	08:41	09:15 (3)
	16:49 26	09:44 (3)	17:46 29	09:06 (1)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49 10	08:36 (1)	16:23 44	10:32 (2)
14	08:44	09:20 (3)	07:59	08:38 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:28 (1)	08:42	09:16 (3)
	16:51 25	09:45 (3)	17:48 28	09:06 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48 7	08:35 (1)	16:23 44	10:33 (2)
15	08:44	09:20 (3)	07:57	08:40 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:30 (1)	08:43	09:17 (3)
	16:53 24	09:44 (3)	17:50 24	09:04 (1)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46 4	08:34 (1)	16:24 44	10:33 (2)
16	08:43	09:21 (3)	07:55	08:41 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:32 (1)	08:44	09:18 (3)
	16:54 23	09:44 (3)	17:51 22	09:03 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45 1	08:33 (1)	16:24 43	10:34 (2)
17	08:42	09:22 (3)	07:53	08:43 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03		08:45	09:19 (3)
	16:56 22	09:44 (3)	17:53 18	09:01 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43		16:24 44	10:35 (2)
18	08:41	09:23 (3)	07:51	08:46 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05		08:46	09:19 (3)
	16:58 21	09:44 (3)	17:55 12	08:58 (1)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42		16:24 44	10:35 (2)
19	08:40	09:24 (3)	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	09:06 (3)	08:46	09:20 (3)
	16:59 20	09:44 (3)	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41 6	09:12 (3)	16:24 43	10:36 (2)
20	08:39	09:26 (3)	07:47		06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	09:04 (3)	08:47	09:21 (3)
	17:01 17	09:43 (3)	17:59		18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39 11	09:15 (3)	16:25 44	10:37 (2)
21	08:38	09:26 (3)	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	09:02 (3)	08:48	09:21 (3)
	17:03 15	09:41 (3)	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38 15	09:17 (3)	16:25 44	10:37 (2)
22	08:36	09:29 (3)	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	09:02 (3)	08:48	09:22 (3)
	17:04 11	09:40 (3)	18:03		18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37 17	09:19 (3)	16:26 44	10:38 (2)
23	08:35	09:31 (3)	07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17 09:20 (1)	08:14	09:00 (3)	08:49	09:22 (3)
	17:06 6	09:37 (3)	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28 4 09:24 (1)	16:36 20	09:20 (3)	16:26 44	10:38 (2)
24	08:34		07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19 09:15 (1)	08:15	09:00 (3)	08:49	09:23 (3)
	17:08		18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26 14 09:29 (1)	16:35 21	09:21 (3)	16:27 43	10:39 (2)
25	08:33		07:36		06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21 08:12 (1)	08:17	09:00 (3)	08:49	09:23 (3)
	17:10		18:08		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24 19 08:31 (1)	16:34 22	09:22 (3)	16:27 44	10:39 (2)
26	08:31	08:59 (1)	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23 08:10 (1)	08:18	09:00 (3)	08:50	09:23 (3)
	17:12 1	09:00 (1)	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22 23 08:33 (1)	16:32 23	09:23 (3)	16:28 44	10:39 (2)
27	08:30	08:57 (1)	07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25 08:09 (1)	08:20	09:00 (3)	08:50	09:23 (3)
	17:13 4	09:01 (1)	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20 25 08:34 (1)	16:32 24	09:24 (3)	16:29 43	10:39 (2)
28	08:28	08:56 (1)	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26 08:08 (1)	08:22	08:59 (3)	08:50	09:23 (3)
	17:15 7	09:03 (1)	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18 27 08:35 (1)	16:31 25	09:24 (3)	16:30 44	10:39 (2)
29	08:27	08:54 (1)			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28 08:07 (1)	08:23	08:59 (3)	08:50	09:23 (3)
	17:17 10	09:04 (1)			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16 29 08:36 (1)	16:30 26	09:25 (3)	16:30 44	10:40 (2)
30	08:25	08:53 (1)			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30 08:06 (1)	08:25	09:00 (3)	08:50	09:23 (3)
	17:19 12	09:05 (1)			20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14 31 08:37 (1)	16:29 26	09:26 (3)	16:31 44	10:40 (2)
31	08:24	08:51 (1)			07:17		05:23		05:55	06:46		07:32 08:05 (1)			08:50	09:23 (3)
	17:21 15	09:06 (1)			20:10		21:50		21:34	20:31		17:12 32 08:37 (1)			16:32 43	10:40 (2)
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case	711	465								204	550	1297
Sun reduction	0.16	0.21								0.24	0.19	0.14
Oper. time red.	1.00	1.00								1.00	1.00	1.00
Wind dir. red.	0.64	0.65								0.65	0.65	0.63
Total reduction	0.10	0.14								0.16	0.12	0.09
Total, real	72	63								32	67	113

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** Y - H25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50 16:34	08:22 17:23	07:27 18:16	07:15 20:12	06:09 21:04 26	06:34 (3) 07:00 (3)	05:22 21:52 9	05:51 (1) 06:00 (1)	05:18 22:06 17	05:50 (2) 06:07 (1)	05:56 21:33	06:48 20:29	07:38 19:18	07:34 17:10	08:26 16:28
2	08:50 16:35	08:21 17:25	07:25 18:18	07:13 20:13	06:07 21:06 25	06:35 (3) 07:00 (3)	05:21 21:53 10	05:50 (1) 06:00 (1)	05:19 22:05 17	05:51 (2) 06:08 (1)	05:58 21:31	06:49 20:27	07:40 19:15	07:36 17:08	08:28 16:28
3	08:50 16:36	08:19 17:27	07:23 18:20	07:10 20:15	06:05 21:08 23	06:36 (3) 06:59 (3)	05:20 21:54 11	05:50 (1) 06:01 (1)	05:20 22:05 16	05:51 (2) 06:07 (1)	05:59 21:29	06:51 20:24	07:42 19:13	07:37 17:06	08:29 16:27
4	08:50 16:37	08:17 17:29	07:21 18:22	07:08 20:17	06:03 21:09 20	06:37 (3) 06:57 (3)	05:19 21:55 12	05:49 (1) 06:01 (1)	05:21 22:05 15	05:52 (2) 06:07 (1)	06:01 21:27	06:53 20:22	07:43 19:11	07:39 17:04	08:30 16:26
5	08:50 16:38	08:16 17:30	07:18 18:23	07:06 20:19	06:01 21:11 19	06:37 (3) 06:56 (3)	05:19 21:56 13	05:49 (2) 06:02 (1)	05:22 22:04 15	05:53 (2) 06:08 (1)	06:03 21:26 7	06:53 (3) 07:00 (3)	06:54 20:20	07:45 19:08	07:41 17:03	08:32 16:26
6	08:49 16:40	08:14 17:32	07:16 18:25	07:03 20:20	05:59 21:13 15	06:39 (3) 06:54 (3)	05:18 21:57 14	05:48 (2) 06:02 (1)	05:22 22:04 14	05:54 (2) 06:08 (1)	06:04 21:24 13	06:50 (3) 07:03 (3)	06:56 20:17	07:47 19:06	07:43 17:01	08:33 16:25
7	08:49 16:41	08:12 17:34	07:14 18:27	07:01 20:22	05:57 21:15 11	06:41 (3) 06:52 (3)	05:17 21:58 15	05:47 (2) 06:02 (1)	05:23 22:03 13	05:55 (2) 06:08 (1)	06:06 21:22 17	06:48 (3) 07:05 (3)	06:58 20:15	07:49 19:04	07:45 16:59	08:34 16:25
8	08:48 16:42	08:10 17:36	07:11 18:29	06:59 20:24	05:55 21:16 2	06:45 (3) 06:47 (3)	05:17 21:59 15	05:47 (2) 06:02 (1)	05:24 22:02 13	05:56 (2) 06:09 (1)	06:08 21:20 20	06:46 (3) 07:06 (3)	06:59 20:13	07:50 19:01	07:47 16:57	08:36 16:25
9	08:48 16:44	08:08 17:38	07:09 18:31	06:56 20:26	05:53 21:18		05:16 22:00 16	05:47 (2) 06:03 (1)	05:25 22:02 12	05:57 (1) 06:09 (1)	06:09 21:18 21	06:46 (3) 07:07 (3)	07:01 20:10	07:52 18:59	07:49 16:56	08:37 16:24
10	08:47 16:45	08:07 17:40	07:07 18:33	06:54 20:28	05:52 21:20		05:16 22:00 16	05:46 (2) 06:02 (1)	05:26 22:01 11	05:58 (1) 06:09 (1)	06:11 21:16 23	06:44 (3) 07:07 (3)	07:03 20:08	07:54 18:57	07:50 16:54	08:38 16:24
11	08:47 16:46	08:05 17:42	07:04 18:34	06:52 20:29	05:50 21:21		05:15 22:01 17	05:46 (2) 06:03 (1)	05:27 22:00 10	05:59 (1) 06:09 (1)	06:12 21:14 24	06:44 (3) 07:08 (3)	07:04 20:05	07:56 18:55	07:52 16:52	08:39 16:24
12	08:46 16:48	08:03 17:44	07:02 18:36	06:49 20:31	05:48 21:23		05:15 22:02 17	05:46 (2) 06:03 (1)	05:28 21:59 9	06:00 (1) 06:09 (1)	06:14 21:12 26	06:42 (3) 07:08 (3)	07:06 20:03	07:57 18:52	07:54 16:51	08:40 16:24
13	08:45 16:50	08:01 17:46	07:00 18:38	06:47 20:33	05:47 21:24		05:15 22:03 18	05:46 (2) 06:04 (1)	05:30 21:58 8	06:01 (1) 06:09 (1)	06:16 21:10 25	06:44 (3) 07:09 (3)	07:08 20:01	07:59 18:50	07:56 16:49	08:41 16:24
14	08:44 16:51	07:59 17:48	06:57 18:40	06:45 20:35	05:45 21:26		05:14 22:03 18	05:45 (2) 06:03 (1)	05:31 21:57 6	06:02 (1) 06:08 (1)	06:17 21:08 24	06:46 (3) 07:10 (3)	07:10 19:58	08:01 18:48	07:58 16:48	08:42 16:24
15	08:44 16:53	07:57 17:50	06:55 18:42	06:43 20:36	05:43 21:28		05:14 22:04 18	05:45 (2) 06:03 (1)	05:32 21:56 5	06:03 (1) 06:08 (1)	06:19 21:06 22	06:47 (3) 07:09 (3)	07:11 19:56	08:03 18:46	07:59 16:46	08:43 16:24
16	08:43 16:54	07:55 17:52	06:53 18:43	06:40 20:38	05:42 21:29		05:14 22:04 19	05:45 (2) 06:04 (1)	05:33 21:55 3	06:04 (1) 06:07 (1)	06:21 21:04 20	06:49 (3) 07:09 (3)	07:13 19:54	08:05 18:43	08:01 16:45	08:44 16:24
17	08:42 16:56	07:53 17:53	06:50 18:45	06:38 20:40	05:40 21:31		05:14 22:05 19	05:45 (2) 06:04 (1)	05:35 21:54 2	06:05 (1) 06:07 (1)	06:22 21:02 18	06:50 (3) 07:08 (3)	07:15 19:51	08:06 18:41	08:03 16:43	08:45 16:24
18	08:41 16:58	07:51 17:55	06:48 18:47	06:36 20:42	05:39 21:32		05:14 22:05 19	05:45 (2) 06:04 (1)	05:36 21:53		06:24 21:00 16	06:52 (3) 07:08 (3)	07:16 19:49	08:08 18:39	08:05 16:42	08:46 16:24
19	08:40 16:59	07:49 17:57	06:46 18:49	06:34 20:43 1	05:37 06:58 (3) 21:34		05:14 22:06 19	05:45 (2) 06:04 (1)	05:37 21:52		06:26 20:58 14	06:53 (3) 07:07 (3)	07:18 19:46	08:10 18:37	08:07 16:41	08:46 16:24
20	08:39 17:01	07:47 17:59	06:43 18:50	06:32 20:45 4	06:55 (3) 06:59 (3) 21:35		05:14 22:06 19	05:45 (2) 06:04 (1)	05:38 21:50		06:28 20:56 12	06:55 (3) 07:07 (3)	07:20 19:44	08:12 18:35	08:08 16:39	08:47 16:25
21	08:37 17:03	07:45 18:01	06:41 18:52	06:29 20:47 7	06:53 (3) 07:00 (3) 21:37		05:14 22:06 19	05:46 (2) 06:05 (1)	05:40 21:49		06:29 20:54 10	06:57 (3) 07:07 (3)	07:21 19:42	08:14 18:32	08:10 16:38	08:48 16:25
22	08:36 17:04	07:43 18:03	06:39 18:54	06:27 20:49 10	06:51 (3) 07:01 (3) 21:38		05:14 22:06 19	05:46 (2) 06:05 (1)	05:41 21:48		06:31 20:51 7	06:58 (3) 07:05 (3)	07:23 19:39	08:15 18:30	08:12 16:37	08:48 16:26
23	08:35 17:06	07:40 18:05	06:36 18:56	06:25 20:50 12	06:49 (3) 07:01 (3) 21:40		05:15 22:07 19	05:46 (2) 06:05 (1)	05:43 21:47		06:33 20:49 4	07:00 (3) 07:04 (3)	07:25 19:37	08:17 18:28	08:13 16:36	08:49 16:26
24	08:34 17:08	07:38 18:07	06:34 18:58	06:23 20:52 15	06:47 (3) 07:02 (3) 21:41		05:15 22:07 19	05:47 (2) 06:06 (1)	05:44 21:45		06:34 20:47 1	07:01 (3) 07:02 (3)	07:26 19:34	08:19 18:26	08:15 16:35	08:49 16:27
25	08:32 17:10	07:36 18:09	06:32 18:59	06:21 20:54 17	06:45 (3) 07:02 (3) 21:43		05:15 22:07 19	05:47 (2) 06:06 (1)	05:46 21:44		06:36 20:45		07:28 19:32	08:21 17:24	08:17 16:34	08:49 16:27
26	08:31 17:12	07:34 18:10	06:29 19:01	06:19 20:56 19	06:43 (3) 07:02 (3) 21:44 1	05:56 (1) 05:57 (1)	05:16 22:07 19	05:47 (2) 06:06 (1)	05:47 21:42		06:38 20:43		07:30 19:30	08:23 17:22	08:18 16:33	08:50 16:28
27	08:30 17:13	07:32 18:12	06:27 19:03	06:17 20:57 21	06:41 (3) 07:02 (3) 21:45 3	05:55 (1) 05:58 (1)	05:16 22:07 18	05:48 (2) 06:06 (1)	05:49 21:41		06:39 20:40		07:31 19:27	08:25 17:20	08:20 16:32	08:50 16:29
28	08:28 17:15	07:30 18:14	06:24 19:05	06:15 20:59 22	06:39 (3) 07:01 (3) 21:47 4	05:55 (1) 05:59 (1)	05:17 22:06 18	05:48 (2) 06:06 (1)	05:50 21:39		06:41 20:38		07:33 19:25	08:26 17:18	08:22 16:31	08:50 16:30
29	08:27 17:17		07:22 20:06	06:13 21:01 24	06:37 (3) 07:01 (3) 21:48 6	05:54 (1) 06:00 (1)	05:17 22:06 18	05:49 (2) 06:07 (1)	05:52 21:38		06:43 20:36		07:35 19:23	08:28 17:16	08:23 16:30	08:50 16:30
30	08:25 17:19		07:20 20:08	06:11 21:03 25	06:35 (3) 07:00 (3) 21:49 7	05:53 (1) 06:00 (1)	05:18 22:06 17	05:49 (2) 06:06 (1)	05:53 21:36		06:44 20:33		07:37 19:20	07:30 17:14	08:25 16:29	08:50 16:31
31	08:24 17:21		07:17 20:10		05:23 21:50 8	05:52 (1) 06:00 (1)			05:55 21:34		06:46 20:31			07:32 17:12		08:50 16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case				177	170	499	186	324				
Sun reduction				0.35	0.37	0.30	0.26	0.30				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.66	0.66	0.62	0.62	0.66				
Total reduction				0.23	0.24	0.19	0.17	0.20				
Total, real				41	41	93	31	63				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	06:44 (3)	05:22	05:51 (2)	05:18	05:50 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	18 07:02 (3)	21:52	17 06:08 (1)	22:06	24 06:14 (2)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	06:46 (3)	05:21	05:50 (2)	05:19	05:51 (2)	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	15 07:01 (3)	21:53	18 06:08 (1)	22:05	24 06:15 (2)	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	06:48 (3)	05:20	05:50 (2)	05:20	05:51 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	10 06:58 (3)	21:54	18 06:08 (1)	22:05	23 06:14 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03		05:19	05:49 (2)	05:21	05:52 (2)	06:01	06:53	07:43	07:39	08:31
	16:37	17:29	18:22	20:17	21:09		21:55	19 06:08 (1)	22:05	22 06:14 (2)	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01		05:19	05:49 (2)	05:22	05:53 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	20 06:09 (1)	22:04	22 06:15 (2)	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18	05:48 (2)	05:22	05:54 (2)	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13		21:57	20 06:08 (2)	22:04	21 06:15 (2)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17	05:47 (2)	05:23	05:55 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15		21:58	21 06:08 (2)	22:03	20 06:15 (2)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		05:17	05:47 (2)	05:24	05:56 (2)	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16		21:59	22 06:09 (2)	22:02	19 06:15 (2)	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53		05:16	05:47 (2)	05:25	05:57 (2)	06:09	07:00 (3)	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18		22:00	23 06:10 (2)	22:02	19 06:16 (1)	21:18	5 07:05 (3)	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52		05:16	05:46 (2)	05:26	05:58 (2)	06:11	06:56 (3)	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20		22:00	24 06:10 (2)	22:01	18 06:16 (1)	21:16	12 07:08 (3)	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50		05:15	05:46 (2)	05:27	05:59 (2)	06:12	06:54 (3)	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21		22:01	24 06:10 (2)	22:00	17 06:16 (1)	21:14	16 07:10 (3)	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48		05:15	05:46 (2)	05:28	06:00 (2)	06:14	06:52 (3)	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23		22:02	25 06:11 (2)	21:59	16 06:16 (1)	21:12	19 07:11 (3)	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47		05:15	05:46 (2)	05:30	06:01 (2)	06:16	06:51 (3)	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24		22:03	25 06:11 (2)	21:58	15 06:16 (1)	21:10	21 07:12 (3)	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45		05:14	05:45 (2)	05:31	06:02 (2)	06:17	06:50 (3)	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26		22:03	26 06:11 (2)	21:57	14 06:16 (1)	21:08	23 07:13 (3)	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43		05:14	05:45 (2)	05:32	06:03 (2)	06:19	06:49 (3)	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28		22:04	26 06:11 (2)	21:56	13 06:16 (1)	21:06	24 07:13 (3)	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	07:04 (3) 05:42		05:14	05:45 (2)	05:33	06:04 (2)	06:21	06:49 (3)	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	1 07:05 (3) 21:29		22:04	26 06:11 (2)	21:55	12 06:16 (1)	21:04	25 07:14 (3)	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	07:02 (3) 05:40		05:14	05:45 (2)	05:35	06:05 (2)	06:22	06:50 (3)	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	4 07:06 (3) 21:31		22:05	27 06:12 (2)	21:54	11 06:16 (1)	21:02	24 07:14 (3)	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	07:00 (3) 05:39		05:14	05:45 (2)	05:36	06:06 (2)	06:24	06:52 (3)	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	7 07:07 (3) 21:32		22:05	27 06:12 (2)	21:53	9 06:15 (1)	21:00	22 07:14 (3)	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	06:58 (3) 05:37		05:14	05:45 (2)	05:37	06:08 (1)	06:26	06:53 (3)	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	10 07:08 (3) 21:34		22:06	27 06:12 (2)	21:52	8 06:16 (1)	20:58	20 07:13 (3)	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	06:55 (3) 05:36		05:14	05:45 (2)	05:38	06:09 (1)	06:28	06:55 (3)	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	13 07:08 (3) 21:35		22:06	27 06:12 (2)	21:50	6 06:15 (1)	20:56	19 07:14 (3)	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	06:53 (3) 05:34	06:02 (1)	05:14	05:46 (2)	05:40	06:10 (1)	06:29	06:57 (3)	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	15 07:08 (3) 21:37	2 06:04 (1)	22:06	27 06:13 (2)	21:49	5 06:15 (1)	20:54	17 07:14 (3)	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	06:51 (3) 05:33	06:01 (1)	05:14	05:46 (2)	05:41	06:12 (1)	06:31	06:58 (3)	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	17 07:08 (3) 21:38	4 06:05 (1)	22:06	27 06:13 (2)	21:48	3 06:15 (1)	20:51	15 07:13 (3)	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	06:49 (3) 05:32	06:00 (1)	05:15	05:46 (2)	05:43	06:13 (1)	06:33	07:00 (3)	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	19 07:08 (3) 21:40	6 06:06 (1)	22:07	27 06:13 (2)	21:47	1 06:14 (1)	20:49	12 07:12 (3)	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	06:47 (3) 05:30	05:59 (1)	05:15	05:47 (2)	05:44		06:34	07:01 (3)	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21 07:08 (3) 21:41	7 06:06 (1)	22:07	27 06:14 (2)	21:45		20:47	10 07:11 (3)	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	06:45 (3) 05:29	05:58 (2)	05:15	05:47 (2)	05:46		06:36	07:03 (3)	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	22 07:07 (3) 21:43	9 06:07 (1)	22:07	27 06:14 (2)	21:44		20:45	7 07:10 (3)	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	06:43 (3) 05:28	05:56 (2)	05:16	05:47 (2)	05:47		06:38	07:05 (3)	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	24 07:07 (3) 21:44	10 06:06 (1)	22:07	27 06:14 (2)	21:42		20:43	4 07:09 (3)	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	06:41 (3) 05:27	05:55 (2)	05:16	05:48 (2)	05:49		06:39	07:06 (3)	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	25 07:06 (3) 21:45	11 06:06 (1)	22:07	26 06:14 (2)	21:41		20:40	1 07:07 (3)	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	06:41 (3) 05:26	05:55 (2)	05:17	05:48 (2)	05:50		06:41		07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	24 07:05 (3) 21:47	13 06:08 (1)	22:06	26 06:14 (2)	21:39		20:38		19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	06:42 (3) 05:25	05:54 (2)	05:17	05:49 (2)	05:52		06:43		07:35	07:28	08:23	08:50
	17:17		20:06	21:01	22 07:04 (3) 21:48	14 06:08 (1)	22:06	25 06:14 (2)	21:38		20:36		19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	06:43 (3) 05:24	05:53 (2)	05:18	05:49 (2)	05:53		06:44		07:37	07:30	08:25	08:50
	17:19		20:08	21:03	20 07:03 (3) 21:49	15 06:08 (1)	22:06	25 06:14 (2)	21:36		20:33		19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	05:52 (2)			05:55		06:46			07:32		08:50
	17:21		20:10		21:50	16 06:08 (1)			21:34		20:31			17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case				244	150	726	342	296				
Sun reduction				0.35	0.37	0.30	0.26	0.30				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.66	0.64	0.63	0.63	0.66				
Total reduction				0.23	0.23	0.19	0.17	0.20				
Total, real				57	35	135	57	58				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare County Council - Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AA - H27

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November	December		
1	08:50		15:24 (2)	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26		
	16:34	18	15:42 (2)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28		
2	08:50		15:24 (2)	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28		
	16:35	17	15:41 (2)	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:27		
3	08:50		15:25 (2)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29		
	16:36	17	15:42 (2)	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27		
4	08:50		15:27 (2)	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30		15:19 (2)
	16:37	15	15:42 (2)	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26	3	15:22 (2)
5	08:50		15:27 (2)	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32		15:16 (2)
	16:38	14	15:41 (2)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26	9	15:25 (2)
6	08:49		15:29 (2)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33		15:16 (2)
	16:39	12	15:41 (2)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25	11	15:27 (2)
7	08:49		15:31 (2)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34		15:15 (2)
	16:41	9	15:40 (2)	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25	13	15:28 (2)
8	08:48		15:34 (2)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36		15:14 (2)
	16:42	4	15:38 (2)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24	15	15:29 (2)
9	08:48			08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37		15:14 (2)
	16:43			17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24	17	15:31 (2)
10	08:47			08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38		15:14 (2)
	16:45			17:40	18:32	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54	16:24	17	15:31 (2)
11	08:47			08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39		15:14 (2)
	16:46			17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24	18	15:32 (2)
12	08:46			08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40		15:14 (2)
	16:48			17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23	19	15:33 (2)
13	08:45			08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41		15:14 (2)
	16:49			17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23	20	15:34 (2)
14	08:44			07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42		15:14 (2)
	16:51			17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23	20	15:34 (2)
15	08:44			07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43		15:14 (2)
	16:52			17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23	21	15:35 (2)
16	08:43			07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44		15:15 (2)
	16:54			17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24	21	15:36 (2)
17	08:42			07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45		15:15 (2)
	16:56			17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24	22	15:37 (2)
18	08:41			07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46		15:15 (2)
	16:57			17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24	21	15:36 (2)
19	08:40			07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46		15:15 (2)
	16:59			17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24	22	15:37 (2)
20	08:39			07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47		15:16 (2)
	17:01			17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25	22	15:38 (2)
21	08:37			07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48		15:16 (2)
	17:03			18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25	22	15:38 (2)
22	08:36			07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48		15:17 (2)
	17:04			18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25	22	15:39 (2)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:49		15:17 (2)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26	22	15:39 (2)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49		15:17 (2)
	17:08			18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27	22	15:39 (2)
25	08:32			07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49		15:19 (2)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27	21	15:40 (2)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50		15:19 (2)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28	22	15:41 (2)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50		15:20 (2)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29	21	15:41 (2)
28	08:28			07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50		15:20 (2)
	17:15			18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:29	21	15:41 (2)
29	08:27				07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50		15:21 (2)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30	20	15:41 (2)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50		15:22 (2)
	17:19				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31	19	15:41 (2)
31	08:24				07:17		05:23		05:55	06:46		07:32		08:50		15:22 (2)
	17:21				20:10		21:50		21:34	20:31		17:12		16:32	20	15:42 (2)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263	240		
Total, worst case		106													523	
Sun reduction		0.16													0.14	
Oper. time red.		1.00													1.00	
Wind dir. red.		0.61													0.61	
Total reduction		0.10													0.08	
Total, real		10													44	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AB - H28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October		November		December	
1	08:50		15:20 (3)		08:22		16:39 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38		07:34		16:06 (1)	08:26		15:09 (3)
	16:34	31	15:51 (3)		17:23	13	16:52 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	34	16:40 (2)	16:28	24	15:33 (3)
2	08:50		15:20 (3)		08:21		16:38 (1)	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40		07:36		16:06 (1)	08:28		15:09 (3)
	16:35	30	15:50 (3)		17:25	16	16:54 (2)	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15		17:08	32	16:38 (2)	16:27	26	15:35 (3)
3	08:50		15:21 (3)		08:19		16:39 (1)	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42		07:37		16:06 (1)	08:29		15:09 (3)
	16:36	30	15:51 (3)		17:26	17	16:56 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	30	16:36 (2)	16:27	26	15:35 (3)
4	08:50		15:22 (3)		08:17		16:38 (1)	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		16:07 (1)	08:30		15:09 (3)
	16:37	29	15:51 (3)		17:28	20	16:58 (2)	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	27	16:34 (2)	16:26	27	15:36 (3)
5	08:50		15:22 (3)		08:16		16:37 (1)	07:18	07:05	06:01	05:18	05:21	06:03	06:54	07:45		07:41		16:07 (1)	08:32		15:09 (3)
	16:38	29	15:51 (3)		17:30	23	17:00 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:02	25	16:32 (2)	16:26	28	15:37 (3)
6	08:49		15:23 (3)		08:14		16:37 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		16:07 (1)	08:33		15:09 (3)
	16:39	29	15:52 (3)		17:32	25	17:02 (2)	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06		17:01	23	16:30 (2)	16:25	29	15:38 (3)
7	08:49		15:24 (3)		08:12		16:37 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		16:08 (1)	08:34		15:09 (3)
	16:41	27	15:51 (3)		17:34	27	17:04 (2)	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04		16:59	20	16:28 (2)	16:25	29	15:38 (3)
8	08:48		15:24 (3)		08:10		16:37 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50		07:47		16:08 (1)	08:36		15:09 (3)
	16:42	27	15:51 (3)		17:36	29	17:06 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01		16:57	18	16:26 (2)	16:24	29	15:38 (3)
9	08:48		15:25 (3)		08:08		16:37 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:48		16:09 (1)	08:37		15:10 (3)
	16:43	27	15:52 (3)		17:38	31	17:08 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:55	15	16:24 (2)	16:24	30	15:40 (3)
10	08:47		15:26 (3)		08:07		16:37 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		16:10 (1)	08:38		15:10 (3)
	16:45	26	15:52 (3)		17:40	33	17:10 (2)	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57		16:54	12	16:22 (1)	16:24	30	15:40 (3)
11	08:47		15:27 (3)		08:05		16:37 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52		16:11 (1)	08:39		15:10 (3)
	16:46	24	15:51 (3)		17:42	36	17:13 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54		16:52	10	16:21 (1)	16:24	31	15:41 (3)
12	08:46		15:28 (3)		08:03		16:37 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57		07:54		16:12 (1)	08:40		15:10 (3)
	16:48	23	15:51 (3)		17:44	38	17:15 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	7	16:19 (1)	16:23	31	15:41 (3)
13	08:45		15:29 (3)		08:01		16:37 (1)	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59		07:56		16:14 (1)	08:41		15:11 (3)
	16:49	22	15:51 (3)		17:46	37	17:14 (2)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50		16:49	3	16:17 (1)	16:23	31	15:42 (3)
14	08:44		15:30 (3)		07:59		16:38 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01		07:58		16:15 (1)	08:42		15:11 (3)
	16:51	20	15:50 (3)		17:48	35	17:13 (2)	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48		16:48	1	16:16 (1)	16:23	31	15:42 (3)
15	08:44		15:32 (3)		07:57		16:39 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		07:59			08:43		15:12 (3)
	16:52	17	15:49 (3)		17:49	34	17:13 (1)	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45		16:46			16:23	31	15:43 (3)
16	08:43		15:33 (3)		07:55		16:39 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04		08:01			08:44		15:12 (3)
	16:54	16	15:49 (3)		17:51	33	17:12 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43		16:45			16:24	31	15:43 (3)
17	08:42		15:36 (3)		07:53		16:40 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06		08:03			08:45		15:13 (3)
	16:56	11	15:47 (3)		17:53	31	17:11 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43			16:24	31	15:44 (3)
18	08:41		15:39 (3)		07:51		16:42 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05			08:46		15:12 (3)
	16:57	6	15:45 (3)		17:55	28	17:10 (1)	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39		16:42			16:24	32	15:44 (3)
19	08:40				07:49		16:42 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	17:26 (1)	08:07			08:46		15:13 (3)
	16:59				17:57	26	17:08 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	2 17:28 (1)	16:40			16:24	32	15:45 (3)
20	08:39				07:47		16:44 (1)	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	17:19 (1)	08:08			08:47		15:14 (3)
	17:01				17:59	23	17:07 (1)	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	14 17:33 (1)	16:39			16:25	31	15:45 (3)
21	08:37				07:45		16:46 (1)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	17:16 (1)	08:10			08:48		15:14 (3)
	17:03				18:01	19	17:05 (1)	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	20 17:36 (1)	16:38			16:25	31	15:45 (3)
22	08:36				07:42		16:50 (1)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	17:14 (1)	08:12			08:48		15:15 (3)
	17:04				18:03	12	17:02 (1)	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	24 17:38 (1)	16:37			16:25	31	15:46 (3)
23	08:35				07:40			06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	17:12 (1)	08:13			08:49		15:15 (3)
	17:06				18:05			18:56	20:50	21:40	22:07	21:46	20:49	19:37	18:28	27 17:39 (1)	16:36			16:26	31	15:46 (3)
24	08:34				07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	17:11 (1)	08:15		15:17 (3)	08:49		15:15 (3)
	17:08				18:07			18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	29 17:40 (1)	16:34	5	15:22 (3)	16:27	32	15:47 (3)
25	08:32				07:36			06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	16:10 (1)	08:17		15:14 (3)	08:49		15:16 (3)
	17:10				18:08			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	31 16:41 (1)	16:33	11	15:25 (3)	16:27	32	15:48 (3)
26	08:31				07:34			06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	16:09 (1)	08:18		15:13 (3)	08:50		15:17 (3)
	17:12				18:10			19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	33 16:42 (1)	16:32	15	15:28 (3)	16:28	31	15:48 (3)
27	08:30				07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	16:08 (1)	08:20		15:12 (3)	08:50		15:17 (3)
	17:13				18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	34 16:42 (2)	16:31	17	15:29 (3)	16:29	31	15:48 (3)
28	08:28		16:43 (1)		07:29			06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	16:07 (1)	08:22		15:10 (3)	08:50		15:17 (3)
	17:15	1	16:44 (1)		18:14			19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	36 16:43 (2)	16:31	20	15:30 (3)	16:29	32	15:49 (3)
29	08:27		16:42 (1)					07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	16:07 (1)	08:23		15:10 (3)	08:50		15:18 (3)
	17:17	3	16:45 (1)					20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	37 16:44 (2)	16:30	22	15:32 (3)	16:30	31	15:49 (3)
30	08:25		16:40 (1)					07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	16:07 (1)	08:25		15:10 (3)	08:50		15:18 (3)
	17:19	7	16:47 (1)					20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	37 16:44 (2)	16:29	23	15:33 (3)	16:31	31	15:49 (3)
31	08:24		16:40 (1)					07:17		05:23		05:55	06:46		07:32	16:06 (1)				08:50		15:19 (3)
	17:21	10	16:50 (1)					20:10		21:50		21:34	20:31		17:12	36 16:42 (2)				16:32	31	15:50 (3)
Potential sun hours	256		276		367	418	489	503	506	456	381	330		263		240					
Total, worst case		445		586									360		370		934		
Sun reduction		0.16		0.21									0.24		0.19		0.14		
Oper. time red.		1.00		1.00									1.00		1.00		1.00		
Wind dir. red.		0.61		0.63									0.63		0.63		0.61		
Total reduction		0.10		0.13									0.15		0.12		0.08		
Total, real		43		77									54		43		78		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November	December
1	08:50		09:23 (3)		08:22		08:49 (1)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:02 (1)	08:26		08:59 (3)
	16:34	41	10:28 (2)		17:23	7	08:56 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	28	08:30 (1)	16:28	42	10:09 (2)
2	08:50		09:23 (3)		08:21		08:47 (1)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:04 (1)	08:28		09:01 (3)
	16:35	42	10:29 (2)		17:25	10	08:57 (1)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	26	08:30 (1)	16:27	43	10:11 (2)
3	08:50		09:22 (3)		08:19		08:46 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:37		08:06 (1)	08:29		09:02 (3)
	16:36	42	10:28 (2)		17:27	13	08:59 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	24	08:30 (1)	16:27	42	10:11 (2)
4	08:50		09:22 (3)		08:17		08:44 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		08:08 (1)	08:31		09:04 (3)
	16:37	42	10:29 (2)		17:28	15	08:59 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	22	08:30 (1)	16:26	42	10:13 (2)
5	08:50		09:21 (3)		08:16		08:42 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45		07:41		08:10 (1)	08:32		09:05 (3)
	16:38	42	10:28 (2)		17:30	18	09:00 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	20	08:30 (1)	16:26	42	10:13 (2)
6	08:49		09:21 (3)		08:14		08:40 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:12 (1)	08:33		09:07 (3)
	16:40	43	10:29 (2)		17:32	20	09:00 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06		17:01	17	08:29 (1)	16:25	43	10:15 (2)
7	08:49		09:20 (3)		08:12		08:38 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:14 (1)	08:35		09:08 (3)
	16:41	42	10:28 (2)		17:34	22	09:00 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	15	08:29 (1)	16:25	42	10:15 (2)
8	08:48		09:20 (3)		08:10		08:36 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50		07:47		08:16 (1)	08:36		09:09 (3)
	16:42	43	10:29 (2)		17:36	25	09:01 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	12	08:28 (1)	16:24	42	10:16 (2)
9	08:48		09:19 (3)		08:08		08:34 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:18 (1)	08:37		09:11 (3)
	16:44	42	10:28 (2)		17:38	27	09:01 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	10	08:28 (1)	16:24	41	10:17 (2)
10	08:47		09:18 (3)		08:07		08:32 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:20 (1)	08:38		09:12 (3)
	16:45	41	10:27 (2)		17:40	29	09:01 (1)	18:32	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	7	08:27 (1)	16:24	41	10:18 (2)
11	08:47		09:17 (3)		08:05		08:30 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52		08:22 (1)	08:39		09:13 (3)
	16:46	42	10:27 (2)		17:42	30	09:00 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55		16:52	4	08:26 (1)	16:24	40	10:18 (2)
12	08:46		09:16 (3)		08:03		08:29 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57		07:54		08:24 (1)	08:40		09:14 (3)
	16:48	40	10:26 (2)		17:44	31	09:00 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	1	08:25 (1)	16:24	40	10:19 (2)
13	08:45		09:16 (3)		08:01		08:30 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56			08:41		09:15 (3)
	16:49	39	10:26 (2)		17:46	30	09:00 (1)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50		16:49			16:23	40	10:20 (2)
14	08:44		09:15 (3)		07:59		08:30 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01		07:58			08:42		09:16 (3)
	16:51	37	10:24 (2)		17:48	29	08:59 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48			16:23	39	10:20 (2)
15	08:44		09:13 (3)		07:57		08:31 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00			08:43		09:17 (3)
	16:53	33	10:21 (2)		17:50	28	08:59 (1)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46			16:24	39	10:21 (2)
16	08:43		09:12 (3)		07:55		08:32 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:57 (3)	08:44		09:18 (3)
	16:54	25	09:37 (3)		17:51	26	08:58 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45	7	09:04 (3)	16:24	39	10:22 (2)
17	08:42		09:12 (3)		07:53		08:33 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06		08:03		08:55 (3)	08:45		09:19 (3)
	16:56	25	09:37 (3)		17:53	24	08:57 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43	12	09:07 (3)	16:24	38	10:22 (2)
18	08:41		09:13 (3)		07:51		08:35 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:53 (3)	08:46		09:19 (3)
	16:58	24	09:37 (3)		17:55	20	08:55 (1)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42	16	09:09 (3)	16:24	39	10:22 (2)
19	08:40		09:14 (3)		07:49		08:37 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:53 (3)	08:46		09:20 (3)
	16:59	24	09:38 (3)		17:57	16	08:53 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41	17	09:10 (3)	16:24	38	10:23 (2)
20	08:39		09:15 (3)		07:47		08:39 (1)	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12		08:08		08:52 (3)	08:47		09:21 (3)
	17:01	23	09:38 (3)		17:59	10	08:49 (1)	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39	20	09:12 (3)	16:25	38	10:24 (2)
21	08:38		09:16 (3)		07:45			06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:52 (3)	08:48		09:21 (3)
	17:03	21	09:37 (3)		18:01			18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38	21	09:13 (3)	16:25	38	10:24 (2)
22	08:36		09:17 (3)		07:43			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		09:08 (1)		08:12			08:51 (3)	08:48		09:22 (3)
	17:04	20	09:37 (3)		18:03			18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	13	09:21 (1)		16:37	23	09:14 (3)	16:26	38	10:25 (2)
23	08:35		09:18 (3)		07:40			06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17		09:06 (1)		08:14			08:50 (3)	08:49		09:22 (3)
	17:06	17	09:35 (3)		18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	17	09:23 (1)		16:36	24	09:14 (3)	16:26	38	10:25 (2)
24	08:34		09:19 (3)		07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19		09:04 (1)		08:15			08:50 (3)	08:49		09:23 (3)
	17:08	16	09:35 (3)		18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	21	09:25 (1)		16:35	25	09:15 (3)	16:27	38	10:26 (2)
25	08:33		09:22 (3)		07:36			06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21		08:02 (1)		08:17			08:50 (3)	08:49		09:23 (3)
	17:10	12	09:34 (3)		18:09			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	25	08:27 (1)		16:34	25	09:15 (3)	16:27	38	10:26 (2)
26	08:31		09:24 (3)		07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:01 (1)		08:18			08:51 (3)	08:50		09:23 (3)
	17:12	7	09:31 (3)		18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	27	08:28 (1)		16:32	25	09:16 (3)	16:28	39	10:26 (2)
27	08:30				07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25		08:00 (1)		08:20			08:53 (3)	08:50		09:23 (3)
	17:13				18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	28	08:28 (1)		16:32	33	10:01 (2)	16:29	39	10:27 (2)
28	08:28				07:30			06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26		08:00 (1)		08:22			08:54 (3)	08:50		09:23 (3)
	17:15				18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	29	08:29 (1)		16:31	37	10:03 (2)	16:30	40	10:27 (2)
29	08:27							07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28		07:59 (1)		08:23			08:56 (3)	08:50		09:23 (3)
	17:17							20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	31	08:30 (1)		16:30	39	10:06 (2)	16:30	39	10:27 (2)
30	08:25		08:53 (1)					07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30		07:59 (1)		08:25			08:58 (3)	08:50		09:23 (3)
	17:19	1	08:54 (1)					20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	31	08:30 (1)		16:29	40	10:08 (2)	16:31	39	10:27 (2)
31	08:24		08:51 (1)					07:17		05:23		05:55	06:46		07:32		08:00 (1)					08:50		09:23 (3)
	17:21	4	08:55 (1)					20:10		21:50		21:34	20:31		17:12	30	08:30 (1)					16:32	41	10:28 (2)
Potential sun hours	256			276		367	418	489	503	506	456	381	330			263				240			
Total, worst case		830		430										252			550			1237			
Sun reduction		0.16		0.21										0.24			0.19			0.14			
Oper. time red.		1.00		1.00										1.00			1.00			1.00			
Wind dir. red.		0.64		0.66										0.66			0.65			0.63			
Total reduction		0.10		0.14										0.16			0.12			0.09			
Total, real		83		59										40			67			106			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October		November		December	
1	08:50		09:23 (3)		08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:02 (1)	08:26		08:59 (3)
	16:34	37	10:21 (2)		17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	23	08:25 (1)	16:28	41	10:03 (2)
2	08:50		09:23 (3)		08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:04 (1)	08:28		09:01 (3)
	16:35	38	10:22 (2)		17:25	2	08:49 (1)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	20	08:24 (1)	16:27	42	10:05 (2)
3	08:50		09:22 (3)		08:19		08:46 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37		08:06 (1)	08:29		09:02 (3)
	16:36	38	10:21 (2)		17:27	5	08:51 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	18	08:24 (1)	16:27	42	10:05 (2)
4	08:50		09:22 (3)		08:17		08:44 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:08 (1)	08:31		09:04 (3)
	16:37	39	10:22 (2)		17:28	8	08:52 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16	08:24 (1)	16:26	40	10:06 (2)
5	08:50		09:21 (3)		08:16		08:42 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41		08:10 (1)	08:32		09:05 (3)
	16:38	39	10:21 (2)		17:30	11	08:53 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	13	08:23 (1)	16:26	41	10:07 (2)
6	08:49		09:21 (3)		08:14		08:40 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:12 (1)	08:33		09:07 (3)
	16:40	39	10:22 (2)		17:32	13	08:53 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	10	08:22 (1)	16:25	40	10:08 (2)
7	08:49		09:20 (3)		08:12		08:38 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:14 (1)	08:35		09:08 (3)
	16:41	41	10:22 (2)		17:34	16	08:54 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	8	08:22 (1)	16:25	39	10:09 (2)
8	08:48		09:20 (3)		08:10		08:36 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47		08:16 (1)	08:36		09:09 (3)
	16:42	41	10:22 (2)		17:36	19	08:55 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	5	08:21 (1)	16:24	39	10:09 (2)
9	08:48		09:19 (3)		08:08		08:34 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49		08:18 (1)	08:37		09:11 (3)
	16:44	41	10:22 (2)		17:38	21	08:55 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	2	08:20 (1)	16:24	38	10:10 (2)
10	08:47		09:18 (3)		08:07		08:32 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		09:12 (3)
	16:45	42	10:22 (2)		17:40	23	08:55 (1)	18:32	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54			16:24	38	10:11 (2)
11	08:47		09:17 (3)		08:05		08:30 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		09:13 (3)
	16:46	42	10:21 (2)		17:42	25	08:55 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52			16:24	37	10:11 (2)
12	08:46		09:16 (3)		08:03		08:28 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		09:36 (2)
	16:48	43	10:21 (2)		17:44	27	08:55 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:24	36	10:12 (2)
13	08:45		09:16 (3)		08:01		08:26 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56			08:41		09:36 (2)
	16:49	42	10:21 (2)		17:46	29	08:55 (1)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49			16:23	36	10:12 (2)
14	08:44		09:15 (3)		07:59		08:25 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58		08:52 (3)	08:42		09:36 (2)
	16:51	41	10:21 (2)		17:48	30	08:55 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	6	08:58 (3)	16:23	37	10:13 (2)
15	08:44		09:13 (3)		07:57		08:25 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00		08:49 (3)	08:43		09:37 (2)
	16:53	41	10:19 (2)		17:50	30	08:55 (1)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	12	09:01 (3)	16:24	36	10:13 (2)
16	08:43		09:12 (3)		07:55		08:26 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01		08:48 (3)	08:44		09:37 (2)
	16:54	39	10:18 (2)		17:51	28	08:54 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	15	09:03 (3)	16:24	37	10:14 (2)
17	08:42		09:11 (3)		07:53		08:27 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03		08:47 (3)	08:45		09:38 (2)
	16:56	38	10:17 (2)		17:53	26	08:53 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	18	09:05 (3)	16:24	37	10:15 (2)
18	08:41		09:10 (3)		07:51		08:28 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05		08:46 (3)	08:46		09:37 (2)
	16:58	35	10:15 (2)		17:55	24	08:52 (1)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	20	09:06 (3)	16:24	38	10:15 (2)
19	08:40		09:09 (3)		07:49		08:29 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07		08:46 (3)	08:46		09:38 (2)
	16:59	26	10:11 (2)		17:57	22	08:51 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	21	09:07 (3)	16:24	37	10:15 (2)
20	08:39		09:09 (3)		07:47		08:30 (1)	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	09:06 (1)		08:08	08:46 (3)	08:47		09:39 (2)
	17:01	25	09:34 (3)		17:59	18	08:48 (1)	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	9	09:15 (1)	16:39	22	09:08 (3)	16:25	37	10:16 (2)
21	08:38		09:09 (3)		07:45		08:32 (1)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	09:02 (1)		08:10	08:45 (3)	08:48		09:39 (2)
	17:03	24	09:33 (3)		18:01	14	08:46 (1)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	15	09:17 (1)	16:38	24	09:09 (3)	16:25	37	10:16 (2)
22	08:36		09:11 (3)		07:43		08:37 (1)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	09:00 (1)		08:12	08:45 (3)	08:48		09:40 (2)
	17:04	22	09:33 (3)		18:03	5	08:42 (1)	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	19	09:19 (1)	16:37	25	09:10 (3)	16:26	37	10:17 (2)
23	08:35		09:11 (3)		07:40			06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:58 (1)		08:14	08:45 (3)	08:49		09:40 (2)
	17:06	21	09:32 (3)		18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	23	09:21 (1)	16:36	26	09:47 (2)	16:26	37	10:17 (2)
24	08:34		09:12 (3)		07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:57 (1)		08:15	08:47 (3)	08:49		09:41 (2)
	17:08	20	09:32 (3)		18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	25	09:22 (1)	16:35	34	09:52 (2)	16:27	37	10:18 (2)
25	08:33		09:14 (3)		07:36			06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	07:56 (1)		08:17	08:49 (3)	08:49		09:41 (2)
	17:10	18	09:32 (3)		18:09			18:59	20:54	21:43	22:07	21:44	20:45	19:32	18:24	27	08:23 (1)	16:34	38	09:55 (2)	16:27	37	10:18 (2)
26	08:31		09:15 (3)		07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:55 (1)		08:18	08:51 (3)	08:50		09:42 (2)
	17:12	15	09:30 (3)		18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	29	08:24 (1)	16:32	39	09:57 (2)	16:28	37	10:19 (2)
27	08:30		09:16 (3)		07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	07:55 (1)		08:20	08:53 (3)	08:50		09:42 (2)
	17:13	12	09:28 (3)		18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	29	08:24 (1)	16:32	41	09:59 (2)	16:29	37	10:19 (2)
28	08:28		09:20 (3)		07:30			06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (1)		08:22	08:54 (3)	08:50		09:43 (2)
	17:15	6	09:26 (3)		18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	30	08:24 (1)	16:31	41	10:00 (2)	16:30	36	10:19 (2)
29	08:27							07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (1)		08:23	08:56 (3)	08:50		09:43 (2)
	17:17							20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	29	08:25 (1)	16:30	42	10:01 (2)	16:30	37	10:20 (2)
30	08:25							07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (1)		08:25	08:58 (3)	08:50		09:44 (2)
	17:19							20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	27	08:25 (1)	16:29	43	10:03 (2)	16:31	36	10:20 (2)
31	08:24							07:17		05:23		05:55	06:46		07:32		08:00 (1)				08:50		09:44 (2)
	17:21							20:10		21:50		21:34	20:31		17:12	25	08:25 (1)				16:32	36	10:20 (2)
Potential sun hours	256		276		367	418	489	503	506	456	381	330		263		240					
Total, worst case		905		396									287		582		1172				
Sun reduction		0.16		0.21									0.24		0.19		0.14				
Oper. time red.		1.00		1.00									1.00		1.00		1.00				
Wind dir. red.		0.64		0.66									0.66		0.65		0.62				
Total reduction		0.10		0.14									0.16		0.12		0.09				
Total, real		91		54									45		70		100				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AE - H31

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	09:32 (2) | 08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:02 (1) | 08:26	08:59 (3)
	16:34 38	10:10 (2) | 17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10 15	08:17 (1) | 16:28 39	09:54 (2)
2	08:50	09:33 (2) | 08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:04 (1) | 08:28	09:01 (3)
	16:35 38	10:11 (2) | 17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08 12	08:16 (1) | 16:27 37	09:55 (2)
3	08:50	09:33 (2) | 08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:06 (1) | 08:29	09:02 (3)
	16:36 37	10:10 (2) | 17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06 9	08:15 (1) | 16:27 37	09:55 (2)
4	08:50	09:34 (2) | 08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:08 (1) | 08:31	09:21 (2)
	16:37 37	10:11 (2) | 17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04 6	08:14 (1) | 16:26 35	09:56 (2)
5	08:50	09:34 (2) | 08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:10 (1) | 08:32	09:20 (2)
	16:38 37	10:11 (2) | 17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03 3	08:13 (1) | 16:26 36	09:56 (2)
6	08:49	09:35 (2) | 08:14	08:40 (1) | 07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33	09:21 (2)
	16:40 37	10:12 (2) | 17:32 4	08:44 (1) | 18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25 37	09:58 (2)
7	08:49	09:35 (2) | 08:12	08:38 (1) | 07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35	09:21 (2)
	16:41 36	10:11 (2) | 17:34 7	08:45 (1) | 18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25 37	09:58 (2)
8	08:48	09:37 (2) | 08:10	08:36 (1) | 07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36	09:21 (2)
	16:42 35	10:12 (2) | 17:36 10	08:46 (1) | 18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24 37	09:58 (2)
9	08:48	09:19 (3) | 08:08	08:34 (1) | 07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37	09:22 (2)
	16:44 36	10:12 (2) | 17:38 12	08:46 (1) | 18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24 37	09:59 (2)
10	08:47	09:18 (3) | 08:07	08:32 (1) | 07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38	09:22 (2)
	16:45 38	10:12 (2) | 17:40 15	08:47 (1) | 18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24 38	10:00 (2)
11	08:47	09:17 (3) | 08:05	08:30 (1) | 07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:46 (3) | 08:39	09:23 (2)
	16:46 39	10:12 (2) | 17:42 18	08:48 (1) | 18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52 3	08:49 (3) | 16:24 37	10:00 (2)
12	08:46	09:16 (3) | 08:03	08:28 (1) | 07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:43 (3) | 08:40	09:23 (2)
	16:48 39	10:12 (2) | 17:44 20	08:48 (1) | 18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51 10	08:53 (3) | 16:24 37	10:00 (2)
13	08:45	09:16 (3) | 08:01	08:26 (1) | 07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41 (3) | 08:41	09:23 (2)
	16:49 41	10:13 (2) | 17:46 22	08:48 (1) | 18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49 14	08:55 (3) | 16:23 38	10:01 (2)
14	08:44	09:15 (3) | 07:59	08:24 (1) | 06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:40 (3) | 08:42	09:24 (2)
	16:51 41	10:12 (2) | 17:48 24	08:48 (1) | 18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48 17	08:57 (3) | 16:23 37	10:01 (2)
15	08:44	09:13 (3) | 07:57	08:22 (1) | 06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:39 (3) | 08:43	09:24 (2)
	16:53 41	10:11 (2) | 17:50 26	08:48 (1) | 18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46 19	08:58 (3) | 16:24 38	10:02 (2)
16	08:43	09:12 (3) | 07:55	08:20 (1) | 06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:38 (3) | 08:44	09:25 (2)
	16:54 42	10:11 (2) | 17:51 28	08:48 (1) | 18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45 21	08:59 (3) | 16:24 37	10:02 (2)
17	08:42	09:11 (3) | 07:53	08:19 (1) | 06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:38 (3) | 08:45	09:25 (2)
	16:56 42	10:11 (2) | 17:53 29	08:48 (1) | 18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43 22	09:00 (3) | 16:24 38	10:03 (2)
18	08:41	09:10 (3) | 07:51	08:20 (1) | 06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08 09:00 (1)	08:05	08:38 (3) | 08:46	09:25 (2)
	16:58 41	10:10 (2) | 17:55 27	08:47 (1) | 18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39 9	09:09 (1) | 16:42 23	09:01 (3) | 16:24 38	10:03 (2)
19	08:40	09:09 (3) | 07:49	08:21 (1) | 06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10 08:56 (1)	08:07	08:38 (3) | 08:46	09:26 (2)
	16:59 42	10:10 (2) | 17:57 26	08:47 (1) | 18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37 16	09:12 (1) | 16:41 31	09:37 (2) | 16:24 38	10:04 (2)
20	08:39	09:08 (3) | 07:47	08:21 (1) | 06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12 08:54 (1)	08:08	08:40 (3) | 08:47	09:27 (2)
	17:01 40	10:09 (2) | 17:59 24	08:45 (1) | 18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35 20	09:14 (1) | 16:39 36	09:41 (2) | 16:25 38	10:05 (2)
21	08:38	09:06 (3) | 07:45	08:22 (1) | 06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14 08:52 (1)	08:10	08:42 (3) | 08:48	09:27 (2)
	17:03 39	10:07 (2) | 18:01 21	08:43 (1) | 18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32 22	09:14 (1) | 16:38 39	09:43 (2) | 16:25 37	10:04 (2)
22	08:36	09:05 (3) | 07:43	08:24 (1) | 06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15 08:51 (1)	08:12	08:44 (3) | 08:48	09:28 (2)
	17:04 36	10:06 (2) | 18:03 18	08:42 (1) | 18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30 24	09:15 (1) | 16:37 40	09:45 (2) | 16:26 37	10:05 (2)
23	08:35	09:03 (3) | 07:40	08:26 (1) | 06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17 08:50 (1)	08:14	08:45 (3) | 08:49	09:28 (2)
	17:06 31	10:02 (2) | 18:05 14	08:40 (1) | 18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28 26	09:16 (1) | 16:36 42	09:46 (2) | 16:26 37	10:05 (2)
24	08:34	09:04 (3) | 07:38	08:31 (1) | 06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19 08:49 (1)	08:15	08:47 (3) | 08:49	09:29 (2)
	17:08 23	09:27 (3) | 18:07 4	08:35 (1) | 18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26 28	09:17 (1) | 16:35 41	09:47 (2) | 16:27 38	10:07 (2)
25	08:33	09:05 (3) | 07:36	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21 07:48 (1)	08:17	08:49 (3) | 08:49	09:29 (2)
	17:10 22	09:27 (3) | 18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24 29	08:17 (1) | 16:34 42	09:49 (2) | 16:27 38	10:07 (2)
26	08:31	09:05 (3) | 07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23 07:50 (1)	08:18	08:51 (3) | 08:50	09:29 (2)
	17:12 21	09:26 (3) | 18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22 28	08:18 (1) | 16:33 42	09:50 (2) | 16:28 38	10:07 (2)
27	08:30	09:06 (3) | 07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25 07:52 (1)	08:20	08:53 (3) | 08:50	09:30 (2)
	17:13 19	09:25 (3) | 18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20 26	08:18 (1) | 16:32 41	09:51 (2) | 16:29 37	10:07 (2)
28	08:28	09:08 (3) | 07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26 07:54 (1)	08:22	08:54 (3) | 08:50	09:30 (2)
	17:15 17	09:25 (3) | 18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18 24	08:18 (1) | 16:31 42	09:52 (2) | 16:30 38	10:08 (2)
29	08:27	09:09 (3) |	07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28 07:56 (1)	08:23	08:56 (3) | 08:50	09:30 (2)
	17:17 14	09:23 (3) |	20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16 22	08:18 (1) | 16:30 41	09:53 (2) | 16:30 38	10:08 (2)
30	08:25	09:12 (3) |	07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30 07:58 (1)	08:25	08:58 (3) | 08:50	09:31 (2)
	17:19 10	09:22 (3) |	20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14 19	08:17 (1) | 16:29 39	09:54 (2) | 16:31 38	10:09 (2)
31	08:24	|	07:17		05:23		05:55	06:46		07:32 08:00 (1)	|	08:50	09:32 (2)
	17:21	|	20:10		21:50		21:34	20:31		17:12 17	08:17 (1) |	16:32 37	10:09 (2)
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240	
Total, worst case	1009	349								310	650	1159	
Sun reduction	0.16	0.21								0.24	0.19	0.14	
Oper. time red.	1.00	1.00								1.00	1.00	1.00	
Wind dir. red.	0.64	0.67								0.67	0.64	0.63	
Total reduction	0.10	0.14								0.16	0.12	0.09	
Total, real	102	48								49	78	101	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
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	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
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30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
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24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AI - H35

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November	December
1	08:50		09:23 (2)		08:22	09:02 (3)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:02 (1)	08:26	09:04 (2)
	16:34	30	09:53 (2)	13	17:23	09:15 (3)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	5	08:07 (1)	16:28	35	09:39 (2)
2	08:50		09:23 (2)		08:21	09:04 (3)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:04 (1)	08:28		09:05 (2)
	16:35	31	09:54 (2)	9	17:25	09:13 (3)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	2	08:06 (1)	16:28	35	09:40 (2)
3	08:50		09:22 (2)		08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		09:04 (2)
	16:36	32	09:54 (2)		17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	36	09:40 (2)
4	08:50		09:22 (2)		08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:31		09:05 (2)
	16:37	32	09:54 (2)		17:28		18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	36	09:41 (2)
5	08:50		09:21 (2)		08:16		07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41			08:32		09:05 (2)
	16:38	33	09:54 (2)		17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03			16:26	36	09:41 (2)
6	08:49		09:21 (2)		08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		09:07 (2)
	16:40	34	09:55 (2)		17:32		18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	35	09:42 (2)
7	08:49		09:20 (2)		08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:35		09:08 (2)
	16:41	35	09:55 (2)		17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59			16:25	34	09:42 (2)
8	08:48		09:21 (2)		08:10		07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47			08:36		09:09 (2)
	16:42	35	09:56 (2)		17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57			16:24	33	09:42 (2)
9	08:48		09:21 (2)		08:08	08:34 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49		08:34 (3)	08:37		09:11 (2)
	16:44	36	09:57 (2)		17:38	08:36 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	10	08:44 (3)	16:24	32	09:43 (2)
10	08:47		09:22 (2)		08:07	08:32 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		08:32 (3)	08:38		09:12 (2)
	16:45	35	09:57 (2)		17:40	08:37 (1)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	14	08:46 (3)	16:24	31	09:43 (2)
11	08:47		09:22 (2)		08:05	08:30 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52		08:31 (3)	08:39		09:13 (2)
	16:46	35	09:57 (2)		17:42	08:38 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	17	08:48 (3)	16:24	30	09:43 (2)
12	08:46		09:22 (2)		08:03	08:28 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54		08:30 (3)	08:40		09:14 (2)
	16:48	35	09:57 (2)		17:44	08:39 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	19	08:49 (3)	16:24	29	09:43 (2)
13	08:45		09:24 (2)		08:01	08:26 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56		08:30 (3)	08:41		09:15 (2)
	16:49	34	09:58 (2)		17:46	08:40 (1)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	20	08:50 (3)	16:23	29	09:44 (2)
14	08:44		09:24 (2)		07:59	08:24 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58		08:29 (3)	08:42		09:16 (2)
	16:51	34	09:58 (2)		17:48	08:40 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	22	08:51 (3)	16:23	28	09:44 (2)
15	08:44		09:24 (2)		07:57	08:22 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00		08:30 (3)	08:43		09:17 (2)
	16:53	34	09:58 (2)		17:50	08:40 (1)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	34	09:23 (2)	16:24	28	09:45 (2)
16	08:43		09:12 (3)		07:55	08:20 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01		08:32 (3)	08:44		09:18 (2)
	16:54	35	09:58 (2)		17:51	08:41 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	36	09:25 (2)	16:24	27	09:45 (2)
17	08:42		09:11 (3)		07:53	08:18 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:52 (1)		08:34 (3)	08:45		09:19 (2)
	16:56	37	09:58 (2)		17:53	08:41 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	09:04 (1)	12	08:36 (3)	16:24	27	09:46 (2)
18	08:41		09:10 (3)		07:51	08:16 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:49 (1)		08:05	08:46		09:19 (2)
	16:58	38	09:58 (2)		17:55	08:41 (1)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	09:06 (1)	17	08:42 (3)	16:24	26	09:45 (2)
19	08:40		09:09 (3)		07:49	08:14 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:47 (1)		08:07	08:38 (3)	08:46		09:20 (2)
	16:59	39	09:58 (2)		17:57	08:40 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	09:08 (1)	21	16:41	40	09:31 (2)	16:24	26	09:46 (2)
20	08:39		09:08 (3)		07:47	08:13 (1)	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:46 (1)		08:08	08:40 (3)	08:47		09:21 (2)
	17:01	40	09:58 (2)		17:59	08:39 (1)	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	09:09 (1)	23	16:39	41	09:32 (2)	16:25	26	09:47 (2)
21	08:38		09:06 (3)		07:45	08:14 (1)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:44 (1)		08:10	08:42 (3)	08:48		09:21 (2)
	17:03	40	09:57 (2)		18:01	08:38 (1)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	09:09 (1)	25	16:38	40	09:33 (2)	16:25	26	09:47 (2)
22	08:36		09:05 (3)		07:43	08:15 (1)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:43 (1)		08:12	08:44 (3)	08:48		09:22 (2)
	17:04	40	09:57 (2)		18:03	08:37 (1)	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	09:09 (1)	26	16:37	40	09:34 (2)	16:26	26	09:48 (2)
23	08:35		09:04 (3)		07:40	08:17 (1)	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:44 (1)		08:14	08:45 (3)	08:49		09:22 (2)
	17:06	40	09:57 (2)		18:05	08:36 (1)	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	09:10 (1)	26	16:36	39	09:34 (2)	16:26	26	09:48 (2)
24	08:34		09:02 (3)		07:38	08:19 (1)	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:46 (1)		08:15	08:47 (3)	08:49		09:23 (2)
	17:08	40	09:55 (2)		18:07	08:34 (1)	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	09:10 (1)	24	16:35	38	09:35 (2)	16:27	26	09:49 (2)
25	08:33		09:01 (3)		07:36	08:21 (1)	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (1)		08:17	08:49 (3)	08:49		09:23 (2)
	17:10	40	09:55 (2)		18:09	08:30 (1)	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	08:10 (1)	22	16:34	37	09:36 (2)	16:27	26	09:49 (2)
26	08:31		08:59 (3)		07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (1)		08:18	08:51 (3)	08:50		09:23 (2)
	17:12	36	09:52 (2)		18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	08:10 (1)	20	16:33	35	09:37 (2)	16:28	27	09:50 (2)
27	08:30		08:57 (3)		07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	07:52 (1)		08:20	09:04 (2)	08:50		09:23 (2)
	17:13	34	09:50 (2)		18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	08:10 (1)	18	16:32	34	09:38 (2)	16:29	27	09:50 (2)
28	08:28		08:58 (3)		07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (1)		08:22	09:03 (2)	08:50		09:23 (2)
	17:15	21	09:19 (3)		18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	08:10 (1)	16	16:31	34	09:37 (2)	16:30	27	09:50 (2)
29	08:27		08:58 (3)				07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (1)		08:23	09:04 (2)	08:50		09:23 (2)
	17:17	20	09:18 (3)				20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	08:09 (1)	13	16:30	34	09:38 (2)	16:30	28	09:51 (2)
30	08:25		09:00 (3)				07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (1)		08:25	09:04 (2)	08:50		09:23 (2)
	17:19	18	09:18 (3)				20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	08:09 (1)	11	16:29	35	09:39 (2)	16:31	28	09:51 (2)
31	08:24		09:01 (3)				07:17		05:23		05:55	06:46		07:32	08:00 (1)					08:50		09:23 (2)
	17:21	16	09:17 (3)				20:10		21:50		21:34	20:31		17:12	08:08 (1)	8				16:32	29	09:52 (2)
Potential sun hours	256		276		367	418	489	503	506	456	381	330	263	240								
Total, worst case	1039		306									282	706	915								
Sun reduction	0.16		0.21									0.24	0.19	0.14								
Oper. time red.	1.00		1.00									1.00	1.00	1.00								
Wind dir. red.	0.64		0.67									0.67	0.65	0.64								
Total reduction	0.10		0.14									0.16	0.12	0.09								
Total, real	106		42									45	85	81								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
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	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AK - H37

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
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	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
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	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
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	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
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	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
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	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
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	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AL - H38

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
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	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
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	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
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15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
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	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
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20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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IE-F91 RHH9 Sligo
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	20:29 (3) 05:22	05:18	21:30 (1) 05:56	20:37 (3) 06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04 6	20:35 (2) 21:51	22:06 1	21:31 (1) 21:33 25	21:02 (3) 20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	20:29 (3) 05:21	05:19	21:31 (1) 05:58	20:36 (3) 06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06 8	20:37 (2) 21:53	22:05 1	21:32 (1) 21:31 24	21:00 (3) 20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	20:28 (3) 05:20	05:20	05:59	20:36 (3) 06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08 11	20:39 (2) 21:54	22:05	21:29 22	20:58 (2) 20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	20:27 (3) 05:19	05:21	06:01	20:36 (3) 06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09 13	20:40 (2) 21:55	22:04	21:27 21	20:57 (2) 20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	20:27 (3) 05:18	05:21	06:03	20:35 (3) 06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11 14	20:41 (2) 21:56	22:04	21:25 20	20:55 (2) 20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	20:26 (3) 05:18	05:22	06:04	20:36 (3) 06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13 17	20:43 (2) 21:57	22:03	21:24 18	20:54 (2) 20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	20:26 (3) 05:17	05:23	06:06	20:36 (3) 06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14 19	20:45 (2) 21:58	22:03	21:22 17	20:53 (2) 20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	20:26 (3) 05:17	05:24	06:07	20:36 (3) 06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16 20	20:46 (2) 21:59	22:02	21:20 14	20:50 (2) 20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	20:26 (3) 05:16	05:25	06:09	20:37 (3) 07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18 21	20:47 (2) 22:00	22:01	21:18 12	20:49 (2) 20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	20:26 (3) 05:16	05:26	06:11	20:37 (3) 07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19 24	20:50 (3) 22:00	22:01	21:16 10	20:47 (2) 20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	20:26 (3) 05:15 21:26 (1)	05:27	06:12	20:38 (3) 07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21 25	20:51 (3) 22:01 1 21:27 (1)	22:00	21:14 7	20:45 (2) 20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	20:26 (3) 05:15 21:27 (1)	05:28	06:14	20:38 (3) 07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23 26	20:52 (3) 22:02 1 21:28 (1)	21:59	21:12 5	20:43 (2) 20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	20:27 (3) 05:15 21:26 (1)	05:30	06:16	20:39 (3) 07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24 27	20:54 (3) 22:03 2 21:28 (1)	21:58	21:10 2	20:41 (2) 20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	20:26 (3) 05:14 21:26 (1)	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26 29	20:55 (3) 22:03 3 21:29 (1)	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	20:27 (3) 05:14 21:26 (1)	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28 29	20:56 (3) 22:04 3 21:29 (1)	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	20:28 (3) 05:14 21:27 (1)	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29 28	20:56 (3) 22:04 3 21:30 (1)	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	20:28 (3) 05:14 21:27 (1)	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31 27	20:55 (3) 22:05 3 21:30 (1)	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	20:29 (3) 05:14 21:27 (1)	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32 26	20:55 (3) 22:05 4 21:31 (1)	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	20:31 (3) 05:14 21:27 (1)	05:37	20:48 (3) 06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34 23	20:54 (3) 22:05 4 21:31 (1)	21:52 9	20:57 (3) 20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	20:31 (3) 05:14 21:27 (1)	05:38	20:46 (3) 06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35 22	20:53 (3) 22:06 4 21:31 (1)	21:50 13	20:59 (3) 20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	20:32 (3) 05:14 21:28 (1)	05:40	20:44 (3) 06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37 20	20:52 (3) 22:06 4 21:32 (1)	21:49 16	21:00 (3) 20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	20:34 (3) 05:14 21:28 (1)	05:41	20:43 (3) 06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38 17	20:51 (3) 22:06 4 21:32 (1)	21:48 18	21:01 (3) 20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	20:35 (3) 05:15 21:28 (1)	05:43	20:42 (3) 06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40 15	20:50 (3) 22:06 4 21:32 (1)	21:46 21	21:03 (3) 20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	20:36 (3) 05:15 21:28 (1)	05:44	20:41 (3) 06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41 11	20:47 (3) 22:07 4 21:32 (1)	21:45 22	21:03 (3) 20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	20:39 (3) 05:15 21:29 (1)	05:45	20:41 (3) 06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42 6	20:45 (3) 22:07 3 21:32 (1)	21:44 24	21:05 (3) 20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16 21:29 (1)	05:47	20:40 (3) 06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07 3 21:32 (1)	21:42 25	21:05 (3) 20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16 21:29 (1)	05:48	20:38 (3) 06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06 3 21:32 (1)	21:41 28	21:06 (3) 20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17 21:29 (1)	05:50	20:38 (3) 06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	22:06 3 21:32 (1)	21:39 29	21:07 (3) 20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17 21:30 (1)	05:51	20:38 (3) 06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06 2 21:32 (1)	21:37 28	21:06 (3) 20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10 20:30 (3)	05:24	05:18 21:30 (1)	05:53	20:38 (3) 06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02 3 20:33 (2)	21:49	22:06 1 21:31 (1)	21:36 27	21:05 (3) 20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	20:37 (3) 06:46		07:32		08:50
	17:21		20:10		21:50		21:34 27	21:04 (3) 20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case				3	484	59	289	197				
Sun reduction				0.35	0.37	0.30	0.26	0.30				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.67	0.67	0.65	0.67	0.67				
Total reduction				0.24	0.25	0.19	0.18	0.20				
Total, real				1	120	11	52	39				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AN - H40

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October		November		December	
1	08:50		09:32 (2)		08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:02 (1)	08:26		08:59 (3)
	16:34	32	10:04 (2)		17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	21	08:23 (1)	16:28	33	09:47 (2)
2	08:50		09:33 (2)		08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:04 (1)	08:28		09:01 (3)
	16:35	31	10:04 (2)		17:25	2	08:49 (1)	18:18	20:13	21:06	21:53	22:06	21:31	20:27		19:15		17:08	19	08:23 (1)	16:27	32	09:48 (2)
3	08:50		09:33 (2)		08:19		08:46 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51		07:42		07:37		08:06 (1)	08:29		09:02 (3)
	16:36	31	10:04 (2)		17:27	5	08:51 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24		19:13		17:06	17	08:23 (1)	16:27	31	09:48 (2)
4	08:50		09:34 (2)		08:17		08:44 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53		07:43		07:39		08:08 (1)	08:31		09:04 (3)
	16:37	31	10:05 (2)		17:28	7	08:51 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22		19:11		17:04	15	08:23 (1)	16:26	31	09:50 (2)
5	08:50		09:34 (2)		08:16		08:42 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54		07:45		07:41		08:10 (1)	08:32		09:20 (2)
	16:38	30	10:04 (2)		17:30	10	08:52 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20		19:08		17:03	12	08:22 (1)	16:26	30	09:50 (2)
6	08:49		09:35 (2)		08:14		08:40 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56		07:47		07:43		08:12 (1)	08:33		09:21 (2)
	16:40	30	10:05 (2)		17:32	13	08:53 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17		19:06		17:01	10	08:22 (1)	16:25	30	09:51 (2)
7	08:49		09:35 (2)		08:12		08:38 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58		07:49		07:45		08:14 (1)	08:35		09:21 (2)
	16:41	30	10:05 (2)		17:34	15	08:53 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15		19:04		16:59	7	08:21 (1)	16:25	30	09:51 (2)
8	08:48		09:20 (3)		08:10		08:36 (1)	07:11	06:59	05:55	05:17	05:24	06:08	06:59		07:50		07:47		08:16 (1)	08:36		09:21 (2)
	16:42	31	10:06 (2)		17:36	17	08:53 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13		19:01		16:57	4	08:20 (1)	16:24	31	09:52 (2)
9	08:48		09:19 (3)		08:08		08:34 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01		07:52		07:49		08:18 (1)	08:37		09:22 (2)
	16:44	31	10:05 (2)		17:38	19	08:53 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10		18:59		16:56	1	08:19 (1)	16:24	31	09:53 (2)
10	08:47		09:18 (3)		08:07		08:32 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03		07:54		07:50			08:38		09:22 (2)
	16:45	32	10:05 (2)		17:40	21	08:53 (1)	18:33	20:28	21:20	22:01	22:01	21:16	20:08		18:57		16:54			16:24	31	09:53 (2)
11	08:47		09:17 (3)		08:05		08:30 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04		07:56		07:52			08:39		09:22 (2)
	16:46	33	10:05 (2)		17:42	23	08:53 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05		18:55		16:52			16:24	32	09:54 (2)
12	08:46		09:16 (3)		08:03		08:28 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06		07:57		07:54			08:40		09:22 (2)
	16:48	34	10:05 (2)		17:44	25	08:53 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03		18:52		16:51			16:24	32	09:54 (2)
13	08:45		09:16 (3)		08:01		08:28 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08		07:59		07:56			08:41		09:23 (2)
	16:49	33	10:05 (2)		17:46	24	08:52 (1)	18:38	20:33	21:25	22:03	21:58	21:10	20:01		18:50		16:49			16:23	32	09:55 (2)
14	08:44		09:15 (3)		07:59		08:28 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09		08:01		07:58		08:48 (3)	08:42		09:23 (2)
	16:51	34	10:05 (2)		17:48	24	08:52 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58		18:48		16:48	4	08:52 (3)	16:23	32	09:55 (2)
15	08:44		09:14 (3)		07:57		08:29 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11		08:03		08:00		08:45 (3)	08:43		09:24 (2)
	16:53	33	10:04 (2)		17:50	22	08:51 (1)	18:42	20:36	21:28	22:04	21:56	21:06	19:56		18:46		16:46	10	08:55 (3)	16:24	32	09:56 (2)
16	08:43		09:12 (3)		07:55		08:31 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13		08:05		08:01		08:44 (3)	08:44		09:24 (2)
	16:54	33	10:03 (2)		17:51	19	08:50 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:54		18:43		16:45	13	08:57 (3)	16:24	32	09:56 (2)
17	08:42		09:11 (3)		07:53		08:32 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:15		08:06		08:03		08:43 (3)	08:45		09:25 (2)
	16:56	32	10:02 (2)		17:53	16	08:48 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51		18:41		16:43	16	08:59 (3)	16:24	32	09:57 (2)
18	08:41		09:10 (3)		07:51		08:35 (1)	06:48	06:36	05:39	05:14	05:36	06:24	07:16		08:08		08:05		08:42 (3)	08:46		09:24 (2)
	16:58	31	10:01 (2)		17:55	11	08:46 (1)	18:47	20:42	21:32	22:05	21:53	21:00	19:49		18:39		16:42	18	09:00 (3)	16:24	33	09:57 (2)
19	08:40		09:09 (3)		07:49			06:46	06:34	05:37	05:14	05:37	06:26	07:18		08:10		08:07		08:42 (3)	08:46		09:25 (2)
	16:59	27	09:59 (2)		17:57			18:49	20:43	21:34	22:06	21:52	20:58	19:46		18:37		16:41	19	09:01 (3)	16:24	33	09:58 (2)
20	08:39		09:08 (3)		07:47			06:43	06:32	05:36	05:14	05:38	06:27	07:20		08:12		08:08		08:42 (3)	08:47		09:26 (2)
	17:01	19	09:27 (3)		17:59			18:50	20:45	21:35	22:06	21:51	20:56	19:44		18:35		16:39	20	09:02 (3)	16:25	33	09:59 (2)
21	08:38		09:06 (3)		07:45			06:41	06:29	05:34	05:14	05:40	06:29	07:21		08:14		08:10		08:42 (3)	08:48		09:26 (2)
	17:03	21	09:27 (3)		18:01			18:52	20:47	21:37	22:06	21:49	20:54	19:42		18:32		16:38	21	09:03 (3)	16:25	32	09:58 (2)
22	08:36		09:07 (3)		07:43			06:39	06:27	05:33	05:14	05:41	06:31	07:23		08:15		08:12		08:44 (3)	08:48		09:27 (2)
	17:04	20	09:27 (3)		18:03			18:54	20:49	21:38	22:06	21:48	20:51	19:39		18:30		16:37	19	09:03 (3)	16:26	32	09:59 (2)
23	08:35		09:08 (3)		07:40			06:36	06:25	05:32	05:15	05:43	06:33	07:25		08:17	09:07 (1)	08:14		08:45 (3)	08:49		09:27 (2)
	17:06	19	09:27 (3)		18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37		18:28	5 09:12 (1)	16:36	26	09:35 (2)	16:26	33	10:00 (2)
24	08:34		09:08 (3)		07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26		08:19	09:03 (1)	08:15		08:47 (3)	08:49		09:28 (2)
	17:08	18	09:26 (3)		18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34		18:26	13 09:16 (1)	16:35	30	09:38 (2)	16:27	33	10:01 (2)
25	08:33		09:10 (3)		07:36			06:32	06:21	05:29	05:15	05:46	06:36	07:28		07:21	08:01 (1)	08:17		08:49 (3)	08:49		09:28 (2)
	17:10	16	09:26 (3)		18:09			18:59	20:54	21:43	22:07	21:44	20:45	19:32		17:24	17 08:18 (1)	16:34	32	09:40 (2)	16:27	33	10:01 (2)
26	08:31		09:11 (3)		07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30		07:23	08:00 (1)	08:18		08:51 (3)	08:50		09:29 (2)
	17:12	13	09:24 (3)		18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30		17:22	20 08:20 (1)	16:33	33	09:42 (2)	16:28	32	10:01 (2)
27	08:30		09:12 (3)		07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31		07:25	07:59 (1)	08:20		08:53 (3)	08:50		09:29 (2)
	17:13	10	09:22 (3)		18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27		17:20	22 08:21 (1)	16:32	34	09:44 (2)	16:29	32	10:01 (2)
28	08:28		09:17 (3)		07:30			06:24	06:15	05:26	05:17	05:50	06:41	07:33		07:26	07:58 (1)	08:22		08:54 (3)	08:50		09:29 (2)
	17:15	3	09:20 (3)		18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25		17:18	24 08:22 (1)	16:31	34	09:44 (2)	16:30	33	10:02 (2)
29	08:27							07:22	06:13	05:25	05:17	05:52	06:43	07:35		07:28	07:57 (1)	08:23		08:56 (3)	08:50		09:30 (2)
	17:17							20:06	21:01	21:48	22:06	21:38	20:36	19:23		17:16	25 08:22 (1)	16:30	33	09:45 (2)	16:30	32	10:02 (2)
30	08:25							07:20	06:11	05:24	05:18	05:53	06:44	07:37		07:30	07:58 (1)	08:25		08:58 (3)	08:50		09:30 (2)
	17:19							20:08	21:03	21:49	22:06	21:36	20:33	19:20		17:14	25 08:23 (1)	16:29	34	09:47 (2)	16:31	33	10:03 (2)
31	08:24							07:17		05:23		05:55	06:46			07:32	08:00 (1)				08:50		09:31 (2)
	17:21							20:10		21:50		21:34	20:31			17:12	23 08:23 (1)				16:32	32	10:03 (2)
Potential sun hours	256		276		367	418	489	503	506	456	381	330		263		240							
Total, worst case		738		273									174		502		990						
Sun reduction		0.16		0.21									0.24		0.19		0.14						
Oper. time red.		1.00		1.00									1.00		1.00		1.00						
Wind dir. red.		0.64		0.66									0.66		0.65		0.63						
Total reduction		0.10		0.14									0.16		0.12		0.09						
Total, real		75		37									27		61		86						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AS - H45

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May	June	July	August	September		October		November	December
1	08:50	08:22	07:27		07:15		07:38 (1)	06:09	05:22	05:18	05:56	06:48		07:38	08:04 (3)	07:34	08:26
	16:34	17:23	18:16		20:12	8	07:46 (1)	21:04	21:52	22:06	21:33	20:29		19:18	12 08:16 (3)	17:10	16:28
2	08:50	08:21	07:25		07:13		07:36 (1)	06:07	05:21	05:19	05:58	06:49	07:28 (1)	07:40	08:06 (3)	07:36	08:28
	16:35	17:25	18:18		20:13	10	07:46 (1)	21:06	21:53	22:06	21:31	20:27	6 07:34 (1)	19:15	10 08:16 (3)	17:08	16:28
3	08:50	08:19	07:23		07:10		07:33 (1)	06:05	05:20	05:20	05:59	06:51	07:24 (1)	07:42	08:07 (3)	07:37	08:29
	16:36	17:27	18:20		20:15	12	07:45 (1)	21:08	21:54	22:05	21:29	20:24	12 07:36 (1)	19:13	8 08:15 (3)	17:06	16:27
4	08:50	08:17	07:21		07:08		07:31 (1)	06:03	05:19	05:21	06:01	06:53	07:22 (1)	07:43	08:09 (3)	07:39	08:31
	16:37	17:29	18:22		20:17	14	07:45 (1)	21:09	21:55	22:05	21:27	20:22	16 07:38 (1)	19:11	5 08:14 (3)	17:04	16:26
5	08:50	08:16	07:18		07:06		07:29 (1)	06:01	05:19	05:22	06:03	06:54	07:21 (1)	07:45	08:11 (3)	07:41	08:32
	16:38	17:30	18:23		20:19	16	07:45 (1)	21:11	21:56	22:04	21:26	20:20	18 07:39 (1)	19:08	2 08:13 (3)	17:03	16:26
6	08:49	08:14	07:16		07:03		07:26 (1)	05:59	05:18	05:22	06:04	06:56	07:22 (1)	07:47		07:43	08:33
	16:40	17:32	18:25		20:20	17	07:43 (1)	21:13	21:57	22:04	21:24	20:17	17 07:39 (1)	19:06		17:01	16:25
7	08:49	08:12	07:14		07:01		07:24 (1)	05:57	05:17	05:23	06:06	06:58	07:24 (1)	07:49		07:45	08:35
	16:41	17:34	18:27		20:22	18	07:42 (1)	21:15	21:58	22:03	21:22	20:15	16 07:40 (1)	19:04		16:59	16:25
8	08:48	08:10	07:11		07:35 (3)	06:59	07:25 (1)	05:55	05:17	05:24	06:08	06:59	07:25 (1)	07:50		07:47	08:36
	16:42	17:36	18:29	1	07:36 (3)	20:24	16 07:41 (1)	21:16	21:59	22:02	21:20	20:13	14 07:39 (1)	19:01		16:57	16:24
9	08:48	08:08	07:09		07:33 (3)	06:56	07:27 (1)	05:53	05:16	05:25	06:09	07:01	07:27 (1)	07:52		07:49	08:37
	16:44	17:38	18:31	4	07:37 (3)	20:26	12 07:39 (1)	21:18	22:00	22:02	21:18	20:10	12 07:39 (1)	18:59		16:56	16:24
10	08:47	08:07	07:07		07:30 (3)	06:54	07:29 (1)	05:52	05:16	05:26	06:11	07:03	07:29 (1)	07:54		07:50	08:38
	16:45	17:40	18:33	7	07:37 (3)	20:28	6 07:35 (1)	21:20	22:01	22:01	21:16	20:08	10 07:39 (1)	18:57		16:54	16:24
11	08:47	08:05	07:05		07:28 (3)	06:52		05:50	05:15	05:27	06:12	07:04	07:30 (1)	07:56		07:52	08:39
	16:46	17:42	18:34	9	07:37 (3)	20:29		21:21	22:01	22:00	21:14	20:05	8 07:38 (1)	18:55		16:52	16:24
12	08:46	08:03	07:02		07:26 (3)	06:49		05:48	05:15	05:28	06:14	07:06	07:32 (1)	07:57		07:54	08:40
	16:48	17:44	18:36	12	07:38 (3)	20:31		21:23	22:02	21:59	21:12	20:03	16 08:06 (2)	18:52		16:51	16:24
13	08:45	08:01	07:00		07:23 (3)	06:47		05:47	05:15	05:30	06:16	07:08	07:34 (1)	07:59		07:56	08:41
	16:50	17:46	18:38	14	07:37 (3)	20:33		21:25	22:03	21:58	21:10	20:01	19 08:09 (2)	18:50		16:49	16:24
14	08:44	07:59	06:58		07:21 (3)	06:45		05:45	05:14	05:31	06:17	07:10	07:49 (2)	08:01		07:58	08:42
	16:51	17:48	18:40	15	07:36 (3)	20:35		21:26	22:03	21:57	21:08	19:58	21 08:10 (2)	18:48		16:48	16:24
15	08:44	07:57	06:55		07:18 (2)	06:43		05:43	05:14	05:32	06:19	07:11	07:48 (2)	08:03		08:00	08:43
	16:53	17:50	18:42	17	07:35 (3)	20:36		21:28	22:04	21:56	21:06	19:56	23 08:11 (2)	18:46		16:46	16:24
16	08:43	07:55	06:53		07:16 (2)	06:40		05:42	05:14	05:33	06:21	07:13	07:47 (2)	08:05		08:01	08:44
	16:54	17:52	18:43	18	07:34 (3)	20:38		21:29	22:04	21:55	21:04	19:54	25 08:12 (2)	18:43		16:45	16:24
17	08:42	07:53	06:50		07:14 (2)	06:38		05:40	05:14	05:35	06:22	07:15	07:45 (2)	08:06		08:03	08:45
	16:56	17:53	18:45	19	07:33 (3)	20:40		21:31	22:05	21:54	21:02	19:51	27 08:12 (2)	18:41		16:43	16:24
18	08:41	07:51	06:48		07:11 (2)	06:36		05:39	05:14	05:36	06:24	07:16	07:44 (2)	08:08		08:05	08:46
	16:58	17:55	18:47	18	07:29 (3)	20:42		21:32	22:05	21:53	21:00	19:49	28 08:12 (2)	18:39		16:42	16:24
19	08:40	07:49	06:46		07:09 (2)	06:34		05:37	05:14	05:37	06:26	07:18	07:43 (2)	08:10		08:07	08:46
	16:59	17:57	18:49	17	07:26 (2)	20:43		21:34	22:06	21:52	20:58	19:46	29 08:12 (2)	18:37		16:41	16:24
20	08:39	07:47	06:43		07:07 (2)	06:32		05:36	05:14	05:38	06:28	07:20	07:45 (2)	08:12		08:08	08:47
	17:01	17:59	18:50	20	07:27 (2)	20:45		21:35	22:06	21:51	20:56	19:44	27 08:12 (2)	18:35		16:39	16:25
21	08:38	07:45	06:41		07:04 (2)	06:29		05:34	05:14	05:40	06:29	07:21	07:47 (2)	08:14		08:10	08:48
	17:03	18:01	18:52	22	07:26 (2)	20:47		21:37	22:06	21:49	20:54	19:42	25 08:12 (2)	18:32		16:38	16:25
22	08:36	07:43	06:39		07:02 (2)	06:27		05:33	05:14	05:41	06:31	07:23	07:48 (2)	08:15		08:12	08:48
	17:04	18:03	18:54	25	07:27 (2)	20:49		21:38	22:06	21:48	20:51	19:39	23 08:11 (2)	18:30		16:37	16:26
23	08:35	07:40	06:36		06:59 (2)	06:25		05:32	05:15	05:43	06:33	07:25	07:50 (2)	08:17		08:14	08:49
	17:06	18:05	18:56	27	07:26 (2)	20:50		21:40	22:07	21:47	20:49	19:37	21 08:11 (2)	18:28		16:36	16:26
24	08:34	07:38	06:34		06:57 (2)	06:23		05:30	05:15	05:44	06:34	07:26	07:52 (2)	08:19		08:15	08:49
	17:08	18:07	18:58	28	07:25 (2)	20:52		21:41	22:07	21:45	20:47	19:34	18 08:10 (2)	18:26		16:35	16:27
25	08:33	07:36	06:32		06:57 (2)	06:21		05:29	05:15	05:46	06:36	07:28	07:54 (2)	07:21		08:17	08:49
	17:10	18:09	18:59	28	07:25 (2)	20:54		21:43	22:07	21:44	20:45	19:32	18 08:12 (3)	17:24		16:34	16:27
26	08:31	07:34	06:29		06:56 (2)	06:19		05:28	05:16	05:47	06:38	07:30	07:55 (2)	07:23		08:18	08:50
	17:12	18:10	19:01	28	07:24 (2)	20:56		21:44	22:07	21:42	20:43	19:30	19 08:14 (3)	17:22		16:33	16:28
27	08:30	07:32	06:27		06:57 (2)	06:17		05:27	05:16	05:49	06:39	07:31	07:57 (2)	07:25		08:20	08:50
	17:13	18:12	19:03	26	07:23 (2)	20:57		21:45	22:07	21:41	20:40	19:27	18 08:15 (3)	17:20		16:32	16:29
28	08:28	07:30	06:24		06:57 (2)	06:15		05:26	05:17	05:50	06:41	07:33	07:59 (2)	07:26		08:22	08:50
	17:15	18:14	19:05	24	07:21 (2)	20:59		21:47	22:07	21:39	20:38	19:25	17 08:16 (3)	17:18		16:31	16:30
29	08:27		07:22		07:58 (2)	06:13		05:25	05:17	05:52	06:43	07:35	08:00 (2)	07:28		08:23	08:50
	17:17		20:06	21	08:19 (2)	21:01		21:48	22:06	21:38	20:36	19:23	16 08:16 (3)	17:16		16:30	16:30
30	08:25		07:20		07:43 (1)	06:11		05:24	05:18	05:53	06:44	07:37	08:02 (3)	07:30		08:25	08:50
	17:19		20:08	20	08:18 (2)	21:03		21:49	22:06	21:36	20:34	19:20	14 08:16 (3)	17:14		16:29	16:31
31	08:24		07:17		07:40 (1)			05:23		05:55	06:46			07:32			08:50
	17:21		20:10	17	08:14 (2)			21:50		21:34	20:31			17:12			16:32
Potential sun hours	256	276	367		418		489	503	506	456	381		330		263	240	
Total, worst case			437		129						533		37				
Sun reduction			0.24		0.35						0.28		0.24				
Oper. time red.			1.00		1.00						1.00		1.00				
Wind dir. red.			0.68		0.68						0.68		0.67				
Total reduction			0.17		0.24						0.19		0.16				
Total, real			72		31						102		6				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22		05:18	21:28 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51		22:06	3 21:31 (2)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21		05:19	21:29 (2)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53		22:05	2 21:31 (2)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20		05:20	21:28 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54		22:05	2 21:30 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19		05:21	21:29 (2)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55		22:04	1 21:30 (2)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19		05:21	21:29 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56		22:04	1 21:30 (2)	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18		05:22		06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57		22:03		21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:23 (2)	05:23		06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	1 21:24 (2)	22:03		21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:23 (2)	05:24		06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	2 21:25 (2)	22:02		21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:24 (2)	05:25		06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	2 21:26 (2)	22:01		21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:23 (2)	05:26		06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	3 21:26 (2)	22:01		21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	21:24 (2)	05:27		06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	3 21:27 (2)	22:00		21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:24 (2)	05:28		06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	4 21:28 (2)	21:59		21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:24 (2)	05:30		06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	4 21:28 (2)	21:58		21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:24 (2)	05:31		06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	5 21:29 (2)	21:57		21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:24 (2)	05:32		06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	5 21:29 (2)	21:56		21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:25 (2)	05:33		06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	5 21:30 (2)	21:55		21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	21:25 (2)	05:34		06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	5 21:30 (2)	21:54		21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	21:25 (2)	05:36		06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	5 21:30 (2)	21:53		21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	21:25 (2)	05:37		06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	6 21:31 (2)	21:52		20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	21:25 (2)	05:38		06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	6 21:31 (2)	21:50		20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	21:26 (2)	05:40		06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	6 21:32 (2)	21:49		20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	21:26 (2)	05:41		06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	6 21:32 (2)	21:48		20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	21:26 (2)	05:43		06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	6 21:32 (2)	21:46		20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	21:26 (2)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	6 21:32 (2)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	21:27 (2)	05:45		06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	5 21:32 (2)	21:44		20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	21:27 (2)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	5 21:32 (2)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	21:27 (2)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	5 21:32 (2)	21:41		20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	21:27 (2)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	22:06	5 21:32 (2)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	21:28 (2)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	4 21:32 (2)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	21:27 (2)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	4 21:31 (2)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55		06:46		07:32		08:50
	17:21		20:10		21:50			21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503		506		456	381	330	263	240
Total, worst case						108			9					
Sun reduction						0.30			0.26					
Oper. time red.						1.00			1.00					
Wind dir. red.						0.65			0.65					
Total reduction						0.19			0.17					
Total, real						21			2					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AV - H48

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November		December		
1	08:50		09:23 (3)		08:22		08:49 (1)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:09 (1)	08:26		08:59 (3)
	16:34	30	10:13 (2)		17:23	14	09:03 (1)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	22	08:31 (1)	16:28	26	09:51 (2)
2	08:50		09:23 (3)		08:21		08:47 (1)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:08 (1)	08:28		09:01 (3)
	16:35	31	10:14 (2)		17:25	16	09:03 (1)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	24	08:32 (1)	16:27	29	09:54 (2)
3	08:50		09:22 (3)		08:19		08:46 (1)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:37		08:07 (1)	08:29		09:02 (3)
	16:36	31	10:13 (2)		17:27	18	09:04 (1)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	26	08:33 (1)	16:27	30	09:55 (2)
4	08:50		09:22 (3)		08:17		08:44 (1)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		08:08 (1)	08:31		09:04 (3)
	16:37	31	10:13 (2)		17:28	20	09:04 (1)	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	25	08:33 (1)	16:26	31	09:57 (2)
5	08:50		09:21 (3)		08:16		08:42 (1)	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45		07:41		08:10 (1)	08:32		09:05 (3)
	16:38	31	10:13 (2)		17:30	22	09:04 (1)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	23	08:33 (1)	16:26	31	09:58 (2)
6	08:49		09:21 (3)		08:14		08:40 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:12 (1)	08:33		09:07 (3)
	16:40	31	10:13 (2)		17:32	24	09:04 (1)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06		17:01	22	08:34 (1)	16:25	31	09:59 (2)
7	08:49		09:20 (3)		08:12		08:38 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:14 (1)	08:35		09:08 (3)
	16:41	30	10:12 (2)		17:34	25	09:03 (1)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	20	08:34 (1)	16:25	31	10:00 (2)
8	08:48		09:20 (3)		08:10		08:38 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50		07:47		08:16 (1)	08:36		09:09 (3)
	16:42	30	10:13 (2)		17:36	25	09:03 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	18	08:34 (1)	16:24	30	10:00 (2)
9	08:48		09:19 (3)		08:08		08:38 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:18 (1)	08:37		09:11 (3)
	16:44	30	10:12 (2)		17:38	24	09:02 (1)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	16	08:34 (1)	16:24	31	10:02 (2)
10	08:47		09:18 (3)		08:07		08:39 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:20 (1)	08:38		09:12 (3)
	16:45	29	10:11 (2)		17:40	23	09:02 (1)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	13	08:33 (1)	16:24	31	10:03 (2)
11	08:47		09:17 (3)		08:05		08:40 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52		08:22 (1)	08:39		09:13 (3)
	16:46	26	10:09 (2)		17:42	21	09:01 (1)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55		16:52	11	08:33 (1)	16:24	30	10:03 (2)
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	16:48	20	10:06 (2)		17:44	17	08:59 (1)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	9	08:33 (1)	16:24	31	10:04 (2)
13	08:45		09:16 (3)		08:01		08:43 (1)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		08:26 (1)	08:41		09:15 (3)
	16:49	18	09:34 (3)		17:46	14	08:57 (1)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49	6	08:32 (1)	16:23	31	10:05 (2)
14	08:44		09:15 (3)		07:59		08:47 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01		07:58		08:28 (1)	08:42		09:16 (3)
	16:51	20	09:35 (3)		17:48	7	08:54 (1)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48	3	08:31 (1)	16:23	29	10:05 (2)
15	08:44		09:14 (3)		07:57			06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:30 (1)	08:43		09:17 (3)
	16:53	21	09:35 (3)		17:50			18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46	1	08:31 (1)	16:24	30	10:06 (2)
16	08:43		09:13 (3)		07:55			06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01			08:44		09:18 (3)
	16:54	21	09:34 (3)		17:51			18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45			16:24	30	10:07 (2)
17	08:42		09:14 (3)		07:53			06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06		08:03			08:45		09:19 (3)
	16:56	20	09:34 (3)		17:53			18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43			16:24	29	10:07 (2)
18	08:41		09:15 (3)		07:51			06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05			08:46		09:19 (3)
	16:58	19	09:34 (3)		17:55			18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42			16:24	28	10:07 (2)
19	08:40		09:16 (3)		07:49			06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:57 (3)	08:46		09:20 (3)
	16:59	18	09:34 (3)		17:57			18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41	7	09:04 (3)	16:24	29	10:08 (2)
20	08:39		09:17 (3)		07:47			06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12		08:08		08:55 (3)	08:47		09:21 (3)
	17:01	17	09:34 (3)		17:59			18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39	11	09:06 (3)	16:25	29	10:09 (2)
21	08:38		09:18 (3)		07:45			06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:54 (3)	08:48		09:21 (3)
	17:03	14	09:32 (3)		18:01			18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38	14	09:08 (3)	16:25	29	10:09 (2)
22	08:36		09:20 (3)		07:43			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12		08:53 (3)	08:48		09:22 (3)
	17:04	11	09:31 (3)		18:03			18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30		16:37	17	09:10 (3)	16:26	29	10:10 (2)
23	08:35		09:23 (3)		07:40			06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14		08:52 (3)	08:49		09:22 (3)
	17:06	7	09:30 (3)		18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36	18	09:10 (3)	16:26	29	10:10 (2)
24	08:34				07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15		08:52 (3)	08:49		09:23 (3)
	17:08				18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35	19	09:11 (3)	16:27	29	10:11 (2)
25	08:33				07:36			06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21		08:17		08:52 (3)	08:49		09:23 (3)
	17:10				18:09			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:34	20	09:12 (3)	16:27	29	10:11 (2)
26	08:31				07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:18		08:52 (3)	08:50		09:23 (3)
	17:12				18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:32	21	09:13 (3)	16:28	28	10:11 (2)
27	08:30		08:57 (1)		07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25		08:20		08:53 (3)	08:50		09:23 (3)
	17:13	1	08:58 (1)		18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20		16:32	21	09:14 (3)	16:29	30	10:12 (2)
28	08:28		08:56 (1)		07:30			06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:15 (1)	08:22		08:54 (3)	08:50		09:23 (3)
	17:15	4	09:00 (1)		18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	10 08:25 (1)	16:31	20	09:14 (3)	16:30	29	10:12 (2)
29	08:27		08:54 (1)					07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:13 (1)	08:23		08:56 (3)	08:50		09:23 (3)
	17:17	6	09:00 (1)					20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	14 08:27 (1)	16:30	18	09:14 (3)	16:30	30	10:12 (2)
30	08:25		08:53 (1)					07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:11 (1)	08:25		08:58 (3)	08:50		09:23 (3)
	17:19	9	09:02 (1)					20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	18 08:29 (1)	16:29	20	09:48 (2)	16:31	30	10:12 (2)
31	08:24		08:51 (1)					07:17		05:23		05:55	06:46		07:32	08:10 (1)				08:50		09:23 (3)
	17:21	11	09:02 (1)					20:10		21:50		21:34	20:31		17:12	20 08:30 (1)				16:32	30	10:13 (2)
Potential sun hours	256		276			367	418	489	503	506	456	381	330		263			240				
Total, worst case		567		270										62		445				919		
Sun reduction		0.16		0.21										0.24		0.19				0.14		
Oper. time red.		1.00		1.00										1.00		1.00				1.00		
Wind dir. red.		0.64		0.65										0.65		0.65				0.63		
Total reduction		0.10		0.14										0.16		0.12				0.09		
Total, real		57		37										10		54				79		

Clare Planning Authority Inspection Purposes Only!

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June		July		August		September	October	November	December
1	08:50	08:22	07:27	07:15	06:08		05:22		20:52 (3)	05:18	21:01 (3)	05:56	20:58 (2)	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:51	26	21:18 (3)	22:06	24	21:25 (3)	21:33	4	21:02 (2)	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06		05:21		20:52 (3)	05:19		21:01 (3)	05:58		20:57 (2)	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	27	21:19 (3)	22:05	25	21:26 (3)	21:31	3	21:00 (2)	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05		05:20		20:53 (3)	05:20		21:00 (3)	05:59		20:57 (2)	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08		21:54	28	21:21 (3)	22:05	26	21:26 (3)	21:29	1	20:58 (2)	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03		05:19		20:53 (3)	05:21		21:01 (3)	06:01			06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09		21:55	28	21:21 (3)	22:04	26	21:27 (3)	21:27			20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01		05:18		20:53 (3)	05:21		21:01 (3)	06:03			06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	28	21:21 (3)	22:04	26	21:27 (3)	21:25			20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18		20:54 (3)	05:22		21:01 (3)	06:04			06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13		21:57	28	21:22 (3)	22:03	27	21:28 (3)	21:24			20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17		20:54 (3)	05:23		21:01 (3)	06:06			06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14		21:58	27	21:21 (3)	22:03	27	21:28 (3)	21:22			20:15	19:04	16:59	16:25
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	16:42	17:36	18:29	20:24	21:16		21:59	26	21:21 (3)	22:02	28	21:29 (3)	21:20			20:12	19:01	16:57	16:24
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	16:45	17:40	18:32	20:27	21:19	2	20:50 (2)	25	21:21 (3)	22:01	27	21:27 (3)	21:16			20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50		20:47 (2)	05:15	20:57 (3)	05:27		21:00 (3)	06:12			07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	4	20:51 (2)	24	21:21 (3)	22:00	26	21:26 (3)	21:14			20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48		20:46 (2)	05:15	20:57 (3)	05:28		21:00 (3)	06:14			07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	6	20:52 (2)	25	21:22 (3)	21:59	25	21:25 (3)	21:12			20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46		20:47 (2)	05:15	20:57 (3)	05:30		21:00 (3)	06:16			07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	7	20:54 (2)	24	21:21 (3)	21:58	25	21:25 (3)	21:10			20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45		20:47 (2)	05:14	20:57 (3)	05:31		21:00 (3)	06:17			07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	8	20:55 (2)	24	21:21 (3)	21:57	24	21:24 (3)	21:08			19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43		20:47 (2)	05:14	20:58 (3)	05:32		21:00 (3)	06:19			07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	10	20:57 (2)	23	21:21 (3)	21:56	23	21:23 (3)	21:06			19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42		20:48 (2)	05:14	20:58 (3)	05:33		21:00 (3)	06:21			07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	10	20:58 (2)	23	21:21 (3)	21:55	22	21:22 (3)	21:04			19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40		20:48 (2)	05:14	20:59 (3)	05:34		21:00 (3)	06:22			07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	11	20:59 (2)	22	21:21 (3)	21:54	21	21:21 (3)	21:02			19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39		20:49 (2)	05:14	20:59 (3)	05:36		21:00 (3)	06:24			07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	12	21:01 (2)	22	21:21 (3)	21:53	20	21:20 (3)	21:00			19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37		20:50 (2)	05:14	20:59 (3)	05:37		21:00 (3)	06:26			07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	13	21:03 (2)	22	21:21 (3)	21:52	20	21:20 (3)	20:58			19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36		20:50 (2)	05:14	20:59 (3)	05:38		21:00 (3)	06:27			07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	13	21:03 (2)	22	21:21 (3)	21:50	18	21:18 (3)	20:56			19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34		20:50 (3)	05:14	21:00 (3)	05:40		21:00 (3)	06:29			07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	15	21:05 (3)	22	21:22 (3)	21:49	17	21:17 (3)	20:53			19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33		20:50 (3)	05:14	21:00 (3)	05:41		21:00 (3)	06:31			07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	17	21:07 (3)	22	21:22 (3)	21:48	15	21:15 (3)	20:51			19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32		20:51 (3)	05:15	21:00 (3)	05:43		21:01 (2)	06:32			07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	17	21:08 (3)	22	21:22 (3)	21:46	14	21:15 (2)	20:49			19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30		20:50 (3)	05:15	21:00 (3)	05:44		21:00 (2)	06:34			07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	18	21:08 (3)	22	21:22 (3)	21:45	13	21:13 (2)	20:47			19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29		20:50 (3)	05:15	21:01 (3)	05:45		21:00 (2)	06:36			07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	20	21:10 (3)	22	21:23 (3)	21:44	13	21:13 (2)	20:45			19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28		20:50 (3)	05:16	21:01 (3)	05:47		20:59 (2)	06:37			07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	21	21:11 (3)	22	21:23 (3)	21:42	12	21:11 (2)	20:42			19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27		20:50 (3)	05:16	21:01 (3)	05:48		20:58 (2)	06:39			07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22	21:12 (3)	22	21:24 (3)	21:41	11	21:09 (2)	20:40			19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26		20:51 (3)	05:17	21:01 (3)	05:50		20:58 (2)	06:41			07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	22	21:13 (3)	22	21:24 (3)	21:39	10	21:08 (2)	20:38			19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25		20:52 (3)	05:17	21:01 (3)	05:51		20:58 (2)	06:43			07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	23	21:15 (3)	22	21:25 (3)	21:37	8	21:06 (2)	20:36			19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24		20:52 (3)	05:18	21:01 (3)	05:53		20:58 (2)	06:44			07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	24	21:16 (3)	22	21:25 (3)	21:36	7	21:05 (2)	20:33			19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		20:52 (3)			05:55		20:57 (2)	06:46				07:32		08:50
	17:21		20:10		21:50	25	21:17 (3)			21:34	7	21:04 (2)	20:31				17:12		16:32
Potential sun hours	256	276	367	418	488		503			506		456		381	330	263	240
Total, worst case						320		726			614		8				
Sun reduction						0.37		0.30			0.26		0.30				
Oper. time red.						1.00		1.00			1.00		1.00				
Wind dir. red.						0.66		0.66			0.66		0.67				
Total reduction						0.24		0.20			0.18		0.20				
Total, real						78		143			108		2				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March		April		May		June	
1	08:50		08:22		07:27		07:15		19:38 (3)		06:08	
	16:34		17:23		18:16		20:12	7	19:45 (3)		21:04	7
2	08:50		08:20		07:25		07:13		19:38 (3)		06:06	
	16:35		17:25		18:18		20:13	9	19:47 (3)		21:06	8
3	08:50		08:19		07:23		07:10		19:36 (3)		06:05	
	16:36		17:26		18:20		20:15	12	19:48 (3)		21:08	11
4	08:50		08:17		07:20		07:08		19:36 (3)		06:03	
	16:37		17:28		18:21		20:17	15	19:51 (3)		21:09	12
5	08:49		08:15		07:18		07:05		19:36 (3)		06:01	
	16:38		17:30		18:23		20:19	17	19:53 (3)		21:11	13
6	08:49		08:14		07:16		07:03		19:35 (3)		05:59	
	16:39		17:32		18:25		20:20	19	19:54 (3)		21:13	16
7	08:49		08:12		07:14		07:01		19:35 (3)		05:57	
	16:41		17:34		18:27		20:22	21	19:56 (3)		21:14	17
8	08:48		08:10		07:11		06:59		19:35 (3)		05:55	
	16:42		17:36		18:29		20:24	22	19:57 (3)		21:16	18
9	08:48		08:08		07:09		06:56		19:35 (3)		05:53	
	16:43		17:38		18:31		20:26	23	19:58 (2)		21:18	18
10	08:47		08:06		07:07		06:54		19:36 (3)		05:52	
	16:45		17:40		18:32		20:27	24	20:00 (2)		21:19	20
11	08:47		08:05		07:04		06:52		19:37 (3)		05:50	
	16:46		17:42		18:34		20:29	25	20:02 (2)		21:21	20
12	08:46		08:03		07:02		06:49		19:38 (3)		05:48	
	16:48		17:44		18:36		20:31	26	20:04 (2)		21:23	18
13	08:45		08:01		07:00		06:47		19:39 (3)		05:46	
	16:49		17:46		18:38		20:33	26	20:05 (2)		21:24	15
14	08:44		07:59		06:57		06:45		19:41 (3)		05:45	
	16:51		17:48		18:40		20:34	23	20:07 (2)		21:26	12
15	08:43		07:57		06:55		06:43		19:57 (2)		05:43	
	16:53		17:49		18:41		20:36	12	20:09 (2)		21:28	7
16	08:43		07:55		06:53		06:40		19:59 (2)		05:42	
	16:54		17:51		18:43		20:38	11	20:10 (2)		21:29	
17	08:42		07:53		06:50		06:38		20:01 (2)		05:40	
	16:56		17:53		18:45		20:40	6	20:07 (2)		21:31	
18	08:41		07:51		06:48		06:36				05:39	
	16:57		17:55		18:47		20:41				21:32	
19	08:40		07:49		06:46		06:34				05:37	
	16:59		17:57		18:49		20:43				21:34	
20	08:38		07:47		06:43		06:31				05:36	
	17:01		17:59		18:50		20:45				21:35	
21	08:37		07:45		06:41		06:29				05:34	
	17:03		18:01		18:52		20:47				21:37	
22	08:36		07:42		06:38		06:27				05:33	
	17:04		18:03		18:54		20:48				21:38	
23	08:35		07:40		06:36		06:25				05:32	
	17:06		18:05		18:56		20:50				21:40	
24	08:34		07:38		06:34		06:23				05:30	
	17:08		18:07		18:57		20:52				21:41	
25	08:32		07:36		06:31		06:21				05:29	
	17:10		18:08		18:59		20:54				21:43	
26	08:31		07:34		06:29		06:19				05:28	
	17:12		18:10		19:01		20:55				21:44	
27	08:30		07:32		06:27		06:17				05:27	
	17:13		18:12		19:03		20:57				21:45	
28	08:28		07:29		06:24		06:14				05:26	
	17:15		18:14		19:04		20:59				21:47	
29	08:27				07:22		06:12		20:29 (1)		05:25	
	17:17				20:06		21:01	3	20:32 (1)		21:48	
30	08:25				07:20		06:10		20:29 (1)		05:24	
	17:19				20:08	1	21:02	4	20:33 (1)		21:49	
31	08:24				07:17						05:23	
	17:21				20:10	4					21:50	
Potential sun hours	256		276		367		418		488		503	
Total, worst case					5			305		212		
Sun reduction					0.24			0.35		0.37		
Oper. time red.					1.00			1.00		1.00		
Wind dir. red.					0.68			0.68		0.67		
Total reduction					0.17			0.24		0.25		
Total, real					1			73		53		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July		August		September		October	November	December
1	05:18		05:56		20:41 (1)	06:48	19:36 (3)	07:38	07:34	08:26
	22:06		21:33	19	21:00 (1)	20:29	20:01 (2)	19:18	17:10	16:28
2	05:19		05:58		20:40 (1)	06:49	19:35 (3)	07:40	07:35	08:28
	22:05		21:31	20	21:00 (1)	20:26	19:59 (2)	19:15	17:08	16:27
3	05:20		05:59		20:39 (1)	06:51	19:33 (3)	07:42	07:37	08:29
	22:05		21:29	19	20:58 (1)	20:24	19:56 (2)	19:13	17:06	16:27
4	05:21		06:01		20:39 (1)	06:53	19:32 (3)	07:43	07:39	08:30
	22:04		21:27	18	20:57 (1)	20:22	19:55 (2)	19:11	17:04	16:26
5	05:21		06:03		20:38 (1)	06:54	19:31 (3)	07:45	07:41	08:32
	22:04		21:25	17	20:55 (1)	20:19	19:52 (3)	19:08	17:02	16:26
6	05:22		06:04		20:38 (1)	06:56	19:31 (3)	07:47	07:43	08:33
	22:03		21:24	16	20:54 (1)	20:17	19:50 (3)	19:06	17:01	16:25
7	05:23		06:06		20:38 (1)	06:58	19:31 (3)	07:49	07:45	08:34
	22:03		21:22	15	20:53 (1)	20:15	19:48 (3)	19:04	16:59	16:25
8	05:24		06:07		20:37 (1)	06:59	19:30 (3)	07:50	07:47	08:36
	22:02		21:20	13	20:50 (1)	20:12	19:45 (3)	19:01	16:57	16:24
9	05:25		06:09		20:37 (1)	07:01	19:30 (3)	07:52	07:48	08:37
	22:01		21:18	12	20:49 (1)	20:10	19:43 (3)	18:59	16:56	16:24
10	05:26		06:11		20:37 (1)	07:03	19:31 (3)	07:54	07:50	08:38
	22:01		21:16	10	20:47 (1)	20:08	19:41 (3)	18:57	16:54	16:24
11	05:27		06:12		20:37 (1)	07:04	19:30 (3)	07:56	07:52	08:39
	22:00		21:14	8	20:45 (1)	20:05	19:38 (3)	18:54	16:52	16:24
12	05:28		06:14		20:37 (1)	07:06	19:31 (3)	07:57	07:54	08:40
	21:59		21:12	6	20:43 (1)	20:03	19:36 (3)	18:52	16:51	16:23
13	05:29		06:16		20:37 (1)	07:08	19:31 (3)	07:59	07:56	08:41
	21:58		21:10	4	20:41 (1)	20:01	19:33 (3)	18:50	16:49	16:23
14	05:31		06:17		20:37 (1)	07:09		08:01	07:58	08:42
	21:57		21:08	2	20:39 (1)	19:58		18:48	16:48	16:23
15	05:32		06:19			07:11		08:03	07:59	08:43
	21:56		21:06			19:56		18:45	16:46	16:23
16	05:33		06:21			07:13		08:04	08:01	08:44
	21:55		21:04			19:53		18:43	16:45	16:24
17	05:34		06:22			07:14		08:06	08:03	08:45
	21:54		21:02			19:51		18:41	16:43	16:24
18	05:36		06:24			07:16		08:08	08:05	08:45
	21:53		21:00			19:49		18:39	16:42	16:24
19	05:37		06:26			07:18		08:10	08:06	08:46
	21:52		20:58			19:46		18:37	16:40	16:24
20	05:38		06:27			07:19		08:12	08:08	08:47
	21:50		20:56			19:44		18:34	16:39	16:25
21	05:40		06:29			07:21		08:13	08:10	08:47
	21:49		20:53			19:41		18:32	16:38	16:25
22	05:41		06:31			07:23		08:15	08:12	08:48
	21:48		20:51			19:39		18:30	16:37	16:25
23	05:43		06:32			07:25		08:17	08:13	08:48
	21:46		20:49			19:37		18:28	16:36	16:26
24	05:44		06:34			07:26		08:19	08:15	08:49
	21:45		20:47			19:34		18:26	16:34	16:27
25	05:45		06:36			07:28		07:21	08:17	08:49
	21:44		20:45			19:32		17:24	16:33	16:27
26	05:47		06:37		20:03 (2)	07:30		07:23	08:18	08:50
	21:42		20:42	6	20:09 (2)	19:30		17:22	16:32	16:28
27	05:48		06:39		20:00 (2)	07:31		07:24	08:20	08:50
	21:41		20:40	12	20:12 (2)	19:27		17:20	16:31	16:29
28	05:50		06:41		19:48 (3)	07:33		07:26	08:22	08:50
	21:39		20:38	14	20:11 (2)	19:25		17:18	16:31	16:29
29	05:51	20:46 (1)	06:43		19:42 (3)	07:35		07:28	08:23	08:50
	21:37	10 20:56 (1)	20:36	23	20:08 (2)	19:22		17:16	16:30	16:30
30	05:53	20:45 (1)	06:44		19:39 (3)	07:36		07:30	08:25	08:50
	21:36	13 20:58 (1)	20:33	27	20:06 (2)	19:20		17:14	16:29	16:31
31	05:55	20:43 (1)	06:46		19:37 (3)			07:32		08:50
	21:34	16 20:59 (1)	20:31	26	20:03 (2)			17:12		16:32
Potential sun hours	506		456		381		330	263	240	
Total, worst case	39		287		205					
Sun reduction	0.26		0.30		0.28					
Oper. time red.	1.00		1.00		1.00					
Wind dir. red.	0.67		0.67		0.68					
Total reduction	0.18		0.20		0.19					
Total, real	7		57		39					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AY - H51

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February			March	April	May	June	July	August	September	October	November			December		
1	08:50		15:26 (3)	08:22		16:23 (1)	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34			08:26		
	16:34	12	15:38 (3)	17:23	29	16:52 (2)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28		
2	08:50		15:26 (3)	08:21		16:23 (1)	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36			08:28		
	16:35	11	15:37 (3)	17:25	31	16:54 (2)	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08			16:27		
3	08:50		15:28 (3)	08:19		16:25 (1)	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37		16:04 (1)	08:29		
	16:36	8	15:36 (3)	17:26	31	16:56 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	6	16:10 (1)	16:27		
4	08:50		15:31 (3)	08:17		16:26 (1)	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		16:00 (1)	08:30		
	16:37	4	15:35 (3)	17:28	32	16:58 (2)	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	18	16:21 (2)	16:26		
5	08:50			08:16		16:27 (1)	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41		15:58 (1)	08:32		
	16:38			17:30	29	16:56 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	27	16:25 (2)	16:26		
6	08:49			08:14		16:29 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		15:57 (1)	08:33		
	16:39			17:32	25	16:54 (2)	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	29	16:26 (2)	16:25		
7	08:49			08:12		16:31 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		15:56 (1)	08:34		
	16:41			17:34	12	16:43 (1)	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	32	16:28 (2)	16:25		
8	08:48			08:10		16:37 (1)	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47		15:55 (1)	08:36		15:18 (3)
	16:42			17:36	1	16:38 (1)	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	31	16:26 (2)	16:24	4	15:22 (3)
9	08:48			08:08			07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48		15:54 (1)	08:37		15:17 (3)
	16:43			17:38			18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:55	30	16:24 (2)	16:24	8	15:25 (3)
10	08:47			08:07			07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		15:53 (1)	08:38		15:16 (3)
	16:45			17:40			18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	29	16:22 (2)	16:24	10	15:26 (3)
11	08:47			08:05			07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52		15:53 (1)	08:39		15:16 (3)
	16:46			17:42			18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	28	16:21 (2)	16:24	12	15:28 (3)
12	08:46			08:03			07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54		15:53 (1)	08:40		15:15 (3)
	16:48			17:44			18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	26	16:19 (2)	16:23	14	15:29 (3)
13	08:45			08:01			07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56		15:53 (1)	08:41		15:15 (3)
	16:49			17:46			18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	24	16:17 (2)	16:23	14	15:29 (3)
14	08:44			07:59			06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58		15:53 (1)	08:42		15:15 (3)
	16:51			17:48			18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47	23	16:16 (2)	16:23	15	15:30 (3)
15	08:44			07:57			06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59		15:53 (1)	08:43		15:15 (3)
	16:52			17:49			18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	21	16:14 (2)	16:23	16	15:31 (3)
16	08:43			07:55			06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01		15:53 (1)	08:44		15:16 (3)
	16:54			17:51			18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	19	16:12 (2)	16:24	16	15:32 (3)
17	08:42		16:20 (1)	07:53			06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03		15:53 (1)	08:45		15:16 (3)
	16:56	2	16:22 (1)	17:53			18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	18	16:11 (1)	16:24	17	15:33 (3)
18	08:41		16:20 (1)	07:51			06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05		15:54 (1)	08:46		15:16 (3)
	16:57	4	16:24 (1)	17:55			18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	15	16:09 (1)	16:24	17	15:33 (3)
19	08:40		16:20 (1)	07:49			06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07		15:54 (1)	08:46		15:16 (3)
	16:59	6	16:26 (1)	17:57			18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	14	16:08 (1)	16:24	18	15:34 (3)
20	08:39		16:19 (1)	07:47			06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08		15:55 (1)	08:47		15:17 (3)
	17:01	8	16:27 (1)	17:59			18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	12	16:07 (1)	16:25	18	15:35 (3)
21	08:37		16:20 (1)	07:45			06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10		15:56 (1)	08:48		15:17 (3)
	17:03	9	16:29 (1)	18:01			18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	9	16:05 (1)	16:25	18	15:35 (3)
22	08:36		16:20 (1)	07:42			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12		15:56 (1)	08:48		15:18 (3)
	17:04	12	16:32 (1)	18:03			18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	8	16:04 (1)	16:25	18	15:36 (3)
23	08:35		16:19 (1)	07:40			06:36	06:25	05:32	05:15	05:42	06:32	07:25	08:17	08:13		15:56 (1)	08:49		15:18 (3)
	17:06	14	16:33 (1)	18:05			18:56	20:50	21:40	22:07	21:46	20:49	19:37	18:28	16:36	6	16:02 (1)	16:26	18	15:36 (3)
24	08:34		16:20 (1)	07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15		15:57 (1)	08:49		15:18 (3)
	17:08	15	16:35 (1)	18:07			18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	4	16:01 (1)	16:27	18	15:36 (3)
25	08:32		16:19 (1)	07:36			06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17		15:58 (1)	08:49		15:20 (3)
	17:10	18	16:37 (1)	18:08			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	2	16:00 (1)	16:27	17	15:37 (3)
26	08:31		16:20 (1)	07:34			06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18			08:50		15:20 (3)
	17:11	19	16:39 (2)	18:10			19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32			16:28	17	15:37 (3)
27	08:30		16:20 (1)	07:32			06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20			08:50		15:21 (3)
	17:13	21	16:41 (2)	18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31			16:29	16	15:37 (3)
28	08:28		16:21 (1)	07:29			06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22			08:50		15:21 (3)
	17:15	23	16:44 (2)	18:14			19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31			16:29	16	15:37 (3)
29	08:27		16:21 (1)				07:22	06:12	05:24	05:17	05:51	06:43	07:35	07:28	08:23			08:50		15:22 (3)
	17:17	24	16:45 (2)				20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30			16:30	15	15:37 (3)
30	08:25		16:21 (1)				07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	08:25			08:50		15:23 (3)
	17:19	26	16:47 (2)				20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29			16:31	14	15:37 (3)
31	08:24		16:22 (1)				07:17		05:23		05:55	06:46		07:32				08:50		15:24 (3)
	17:21	28	16:50 (2)				20:10		21:50		21:34	20:31		17:12				16:32	14	15:38 (3)
Potential sun hours	256			276			367	418	489	503	506	456	381	330	263			240		
Total, worst case		264			190											431			360	
Sun reduction		0.16			0.21											0.19			0.14	
Oper. time red.		1.00			1.00											1.00			1.00	
Wind dir. red.		0.62			0.63											0.63			0.61	
Total reduction		0.10			0.13											0.12			0.08	
Total, real		26			25											50			30	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
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	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
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	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BB - H54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
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23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BC - H55

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
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8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
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10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
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12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BD - H56

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
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	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
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	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
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15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BE - H57

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		09:23 (1)	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34			08:26		08:59 (1)
	16:34	19	09:42 (1)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	28	09:27 (1)
2	08:50		09:23 (1)	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36			08:28		09:01 (1)
	16:35	19	09:42 (1)	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08			16:27	27	09:28 (1)
3	08:50		09:22 (1)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37			08:29		09:02 (1)
	16:36	20	09:42 (1)	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	26	09:28 (1)
4	08:50		09:22 (1)	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:31		09:04 (1)
	16:37	21	09:43 (1)	17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	25	09:29 (1)
5	08:50		09:21 (1)	08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41			08:32		09:05 (1)
	16:38	22	09:43 (1)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03			16:26	24	09:29 (1)
6	08:49		09:21 (1)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		09:07 (1)
	16:39	23	09:44 (1)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	23	09:30 (1)
7	08:49		09:20 (1)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:35		09:08 (1)
	16:41	24	09:44 (1)	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59			16:25	22	09:30 (1)
8	08:48		09:20 (1)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		09:09 (1)
	16:42	25	09:45 (1)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57			16:24	21	09:30 (1)
9	08:48		09:19 (1)	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		09:11 (1)
	16:44	26	09:45 (1)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	20	09:31 (1)
10	08:47		09:18 (1)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		09:12 (1)
	16:45	27	09:45 (1)	17:40	18:32	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54			16:24	19	09:31 (1)
11	08:47		09:17 (1)	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		09:13 (1)
	16:46	28	09:45 (1)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52			16:24	19	09:32 (1)
12	08:46		09:17 (1)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		09:14 (1)
	16:48	28	09:45 (1)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:24	18	09:32 (1)
13	08:45		09:19 (1)	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56			08:41		09:15 (1)
	16:49	27	09:46 (1)	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49			16:23	17	09:32 (1)
14	08:44		09:19 (1)	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		09:16 (1)
	16:51	27	09:46 (1)	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	17	09:33 (1)
15	08:44		09:20 (1)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00			08:43		09:17 (1)
	16:53	26	09:46 (1)	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46			16:23	16	09:33 (1)
16	08:43		09:20 (1)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01			08:44		09:18 (1)
	16:54	25	09:45 (1)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45			16:24	16	09:34 (1)
17	08:42		09:21 (1)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03			08:45		09:19 (1)
	16:56	24	09:45 (1)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	15	09:34 (1)
18	08:41		09:22 (1)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05		09:07 (1)	08:46		09:19 (1)
	16:57	23	09:45 (1)	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	5	09:12 (1)	16:24	15	09:34 (1)
19	08:40		09:23 (1)	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07		09:04 (1)	08:46		09:20 (1)
	16:59	22	09:45 (1)	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	11	09:15 (1)	16:24	15	09:35 (1)
20	08:39		09:25 (1)	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08		09:02 (1)	08:47		09:21 (1)
	17:01	20	09:45 (1)	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39	16	09:18 (1)	16:25	15	09:36 (1)
21	08:38		09:25 (1)	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10		09:02 (1)	08:48		09:21 (1)
	17:03	18	09:43 (1)	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	17	09:19 (1)	16:25	15	09:36 (1)
22	08:36		09:27 (1)	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12		09:01 (1)	08:48		09:22 (1)
	17:04	16	09:43 (1)	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	20	09:21 (1)	16:26	14	09:36 (1)
23	08:35		09:30 (1)	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14		08:59 (1)	08:49		09:22 (1)
	17:06	11	09:41 (1)	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	22	09:21 (1)	16:26	15	09:37 (1)
24	08:34		09:33 (1)	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15		08:59 (1)	08:49		09:23 (1)
	17:08	4	09:37 (1)	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	23	09:22 (1)	16:27	15	09:38 (1)
25	08:33			07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17		08:59 (1)	08:49		09:23 (1)
	17:10			18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	24	09:23 (1)	16:27	15	09:38 (1)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18		08:59 (1)	08:50		09:23 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	25	09:24 (1)	16:28	15	09:38 (1)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20		08:59 (1)	08:50		09:23 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	26	09:25 (1)	16:29	16	09:39 (1)
28	08:28			07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22		08:59 (1)	08:50		09:23 (1)
	17:15			18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	26	09:25 (1)	16:30	16	09:39 (1)
29	08:27				07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23		08:59 (1)	08:50		09:23 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	27	09:26 (1)	16:30	16	09:39 (1)
30	08:25				07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25		08:59 (1)	08:50		09:23 (1)
	17:19				20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	28	09:27 (1)	16:31	17	09:40 (1)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:50		09:23 (1)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	18	09:41 (1)
Potential sun hours	256			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		525												270			570	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.65												0.65			0.65	
Total reduction		0.10												0.12			0.09	
Total, real		53												33			50	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BH - H60

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BI - H61

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08		05:22		21:06 (2)	05:18	21:18 (3)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:51	12	21:18 (2)	22:06	13 21:31 (3)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06		05:21		21:07 (2)	05:19	21:18 (3)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	12	21:19 (2)	22:05	14 21:32 (3)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05		05:20		21:09 (2)	05:20	21:18 (3)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08		21:54	12	21:21 (3)	22:05	12 21:30 (3)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03		05:19		21:09 (2)	05:21	21:18 (3)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09		21:55	12	21:21 (3)	22:04	12 21:30 (3)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01		05:18		21:10 (2)	05:21	21:19 (3)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	12	21:22 (3)	22:04	11 21:30 (3)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18		21:13 (3)	05:22	21:19 (3)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13		21:57	10	21:23 (3)	22:03	11 21:30 (3)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17		21:13 (3)	05:23	21:19 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14		21:58	11	21:24 (3)	22:03	10 21:29 (3)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		05:17		21:13 (3)	05:24	21:17 (2)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16		21:59	12	21:25 (3)	22:02	12 21:29 (3)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53		05:16		21:14 (3)	05:25	21:15 (2)	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18		22:00	12	21:26 (3)	22:01	12 21:27 (3)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52		05:16		21:13 (3)	05:26	21:15 (2)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19		22:00	13	21:26 (3)	22:01	12 21:27 (3)	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50		05:15		21:14 (3)	05:27	21:14 (2)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21		22:01	13	21:27 (3)	22:00	12 21:26 (2)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48		05:15		21:14 (3)	05:28	21:14 (2)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23		22:02	14	21:28 (3)	21:59	12 21:26 (2)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46		05:15		21:14 (3)	05:30	21:14 (2)	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24		22:02	14	21:28 (3)	21:58	11 21:25 (2)	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45		05:14		21:14 (3)	05:31	21:13 (2)	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26		22:03	15	21:29 (3)	21:57	11 21:24 (2)	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43		05:14		21:14 (3)	05:32	21:13 (2)	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28		22:04	15	21:29 (3)	21:56	10 21:23 (2)	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42		05:14		21:14 (3)	05:33	21:12 (2)	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29		22:04	16	21:30 (3)	21:55	10 21:22 (2)	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40		05:14		21:15 (3)	05:34	21:12 (2)	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31		22:05	15	21:30 (3)	21:54	9 21:21 (2)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39		05:14		21:15 (3)	05:36	21:11 (2)	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32		22:05	15	21:30 (3)	21:53	9 21:20 (2)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	21:02 (2)	05:14		21:15 (3)	05:37	21:12 (2)	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	1 21:03 (2)	22:05	16	21:31 (3)	21:52	8 21:20 (2)	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	21:01 (2)	05:14		21:15 (3)	05:38	21:12 (2)	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	2 21:03 (2)	22:06	16	21:31 (3)	21:50	6 21:18 (2)	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	21:01 (2)	05:14		21:16 (3)	05:40	21:11 (2)	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	4 21:05 (2)	22:06	16	21:32 (3)	21:49	6 21:17 (2)	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	21:02 (2)	05:14		21:16 (3)	05:41	21:11 (2)	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	5 21:07 (2)	22:06	16	21:32 (3)	21:48	4 21:15 (2)	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	21:02 (2)	05:15		21:16 (3)	05:43	21:12 (2)	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	6 21:08 (2)	22:06	16	21:32 (3)	21:46	3 21:15 (2)	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	21:02 (2)	05:15		21:16 (3)	05:44	21:12 (2)	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	7 21:09 (2)	22:07	16	21:32 (3)	21:45	1 21:13 (2)	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	21:02 (2)	05:15		21:17 (3)	05:45	21:12 (2)	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	8 21:10 (2)	22:07	15	21:32 (3)	21:44	1 21:13 (2)	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	21:02 (2)	05:16		21:17 (3)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	9 21:11 (2)	22:07	15	21:32 (3)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	21:03 (2)	05:16		21:17 (3)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	9 21:12 (2)	22:06	15	21:32 (3)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	21:03 (2)	05:17		21:17 (3)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	10 21:13 (2)	22:06	15	21:32 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	21:05 (2)	05:17		21:18 (3)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	10 21:15 (2)	22:06	14	21:32 (3)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	21:05 (2)	05:18		21:17 (3)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	11 21:16 (2)	22:06	14	21:31 (3)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	21:06 (2)				05:55		06:46		07:32		08:50
	17:21		20:10		21:50	11 21:17 (2)				21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488		503			506		456	381	330	263	240
Total, worst case						93		419		232						
Sun reduction						0.37		0.30		0.26						
Oper. time red.						1.00		1.00		1.00						
Wind dir. red.						0.66		0.65		0.66						
Total reduction						0.24		0.19		0.17						
Total, real						23		82		40						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BK - H63

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:49	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
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30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BL - H64

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
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	16:45	17:40	18:33	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54	16:24
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	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
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14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
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15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BM - H65

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:49	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
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	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BN - H66

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BO - H67

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:49	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BP - H68

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
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	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
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	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BQ - H69

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
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	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
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16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BR - H70

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April	May	June	July	August	September	October		November		December
1	08:50	08:22		07:27		07:51 (1)	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:02 (2)	08:26
	16:34	17:23		18:16	9	08:00 (1)	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	22	08:24 (2)	16:28
2	08:50	08:21		07:25		07:49 (1)	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:04 (2)	08:28
	16:35	17:25	3	08:50 (2)		08:00 (1)	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	20	08:24 (2)	16:28
3	08:50	08:19		08:46 (2)		07:47 (1)	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38		08:06 (2)	08:29
	16:36	17:27	6	08:52 (2)		08:00 (1)	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	18	08:24 (2)	16:27
4	08:50	08:17		08:44 (2)		07:44 (1)	07:08	06:03	05:19	05:21	06:01	06:53	07:43		07:39		08:08 (2)	08:31
	16:37	17:29	9	08:53 (2)		07:59 (1)	20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	16	08:24 (2)	16:26
5	08:50	08:16		08:42 (2)		07:42 (1)	07:06	06:01	05:19	05:22	06:03	06:54	07:45	08:20 (1)	07:41		08:10 (2)	08:32
	16:38	17:30	11	08:53 (2)		07:59 (1)	20:19	21:11	21:56	22:04	21:26	20:20	19:08	10 08:30 (1)	17:03	14	08:24 (2)	16:26
6	08:49	08:14		08:40 (2)		07:40 (1)	07:03	05:59	05:18	05:22	06:04	06:56	07:47	08:18 (1)	07:43		08:12 (2)	08:33
	16:40	17:32	14	08:54 (2)		08:25	18	07:58 (1)	20:20	21:13	21:57	22:04	21:24	20:17	19:06	14 08:32 (1)	17:01	11	08:23 (2)	16:25
7	08:49	08:12		08:38 (2)		07:14		07:40 (1)	07:01	05:57	05:17	05:23	06:06	06:58	07:49	08:15 (1)	07:45		08:14 (2)	08:35
	16:41	17:34	16	08:54 (2)		08:27	16	07:56 (1)	20:22	21:15	21:58	22:03	21:22	20:15	19:04	17 08:32 (1)	16:59	8	08:22 (2)	16:25
8	08:48	08:10		08:36 (2)		07:11		07:42 (1)	06:59	05:55	05:17	05:24	06:08	06:59	07:50	08:16 (1)	07:47		08:16 (2)	08:36
	16:42	17:36	19	08:55 (2)		08:29	12	07:54 (1)	20:24	21:16	21:59	22:02	21:20	20:13	19:01	17 08:33 (1)	16:57	6	08:22 (2)	16:24
9	08:48	08:09		08:34 (2)		07:09		07:46 (1)	06:56	05:53	05:16	05:25	06:09	07:01	07:52	08:18 (1)	07:49		08:18 (2)	08:37
	16:44	17:38	21	08:55 (2)		08:31	4	07:50 (1)	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16 08:34 (1)	16:56	3	08:21 (2)	16:24
10	08:47	08:07		08:32 (2)		07:07			06:54	05:52	05:16	05:26	06:11	07:03	07:54	08:20 (1)	07:50			08:38
	16:45	17:40	23	08:55 (2)		08:33			20:28	21:20	22:01	22:01	21:16	20:08	18:57	14 08:34 (1)	16:54			16:24
11	08:47	08:05		08:30 (2)		07:05			06:52	05:50	05:15	05:27	06:12	07:04	07:56	08:22 (1)	07:52			08:39
	16:46	17:42	25	08:55 (2)		08:34			20:29	21:21	22:01	22:00	21:14	20:06	18:55	12 08:34 (1)	16:52			16:24
12	08:46	08:03		08:28 (2)		07:02			06:49	05:48	05:15	05:28	06:14	07:06	07:57	08:24 (1)	07:54			08:40
	16:48	17:44	26	08:54 (2)		08:36			20:31	21:23	22:02	21:59	21:12	20:03	18:52	10 08:34 (1)	16:51			16:24
13	08:45	08:01		08:26 (3)		07:00			06:47	05:47	05:15	05:30	06:16	07:08	07:59	08:25 (1)	07:56			08:41
	16:49	17:46	28	08:54 (2)		08:38			20:33	21:25	22:03	21:58	21:10	20:01	18:50	8 08:33 (1)	16:49			16:24
14	08:44	07:59		08:24 (3)		06:58			06:45	05:45	05:14	05:31	06:17	07:10	08:01	08:27 (1)	07:58			08:42
	16:51	17:48	29	08:53 (2)		08:40			20:35	21:26	22:03	21:57	21:08	19:58	18:48	5 08:32 (1)	16:48			16:24
15	08:44	07:57		08:22 (3)		06:55			06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:29 (1)	08:00			08:43
	16:53	17:50	30	08:52 (2)		08:42			20:36	21:28	22:04	21:56	21:06	19:56	18:46	2 08:31 (1)	16:46			16:24
16	08:43	07:55		08:22 (3)		06:53			06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01			08:44
	16:54	17:52	29	08:51 (2)		08:43			20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45			16:24
17	08:42	07:53		08:24 (3)		06:50			06:38	05:40	05:14	05:34	06:22	07:15	08:06		08:03			08:45
	16:56	17:53	26	08:50 (2)		08:45			20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43			16:24
18	08:41	07:51		08:27 (3)		06:48			06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05			08:46
	16:58	17:55	16	08:47 (2)		08:47			20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42			16:24
19	08:40	07:49				06:46			06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07			08:46
	16:59	17:57				18:49			20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41			16:24
20	08:39	07:47				06:43			06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08			08:47
	17:01	17:59				18:50			20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39			16:25
21	08:38	07:45				06:41			06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10			08:48
	17:03	18:01				18:52			20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38			16:25
22	08:36	07:43				06:39			06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12			08:48
	17:04	18:03				18:54			20:49	21:38	22:06	21:48	20:51	19:39	18:30		16:37			16:26
23	08:35	07:40				06:36			06:25	05:32	05:15	05:43	06:33	07:25	08:17	09:08 (2)	08:14			08:49
	17:06	18:05				18:56			20:50	21:40	22:07	21:47	20:49	19:37	18:28	6 09:14 (2)	16:36			16:26
24	08:34	07:38				06:34			06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:56 (3)	08:15			08:49
	17:08	18:07				18:58			20:52	21:41	22:07	21:45	20:47	19:34	18:26	19 09:18 (2)	16:35			16:27
25	08:33	07:36				06:32			06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:53 (3)	08:17			08:49
	17:10	18:09				18:59			20:54	21:43	22:07	21:44	20:45	19:32	17:24	27 08:20 (2)	16:34			16:27
26	08:31	07:34				06:29			06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:52 (3)	08:19			08:50
	17:12	18:10				19:01			20:56	21:44	22:07	21:42	20:43	19:30	17:22	29 08:21 (2)	16:33			16:28
27	08:30	07:32		07:56 (1)		06:27			06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (3)	08:20			08:50
	17:13	18:12	3	07:59 (1)		19:03			20:57	21:45	22:07	21:41	20:40	19:27	17:20	30 08:22 (2)	16:32			16:29
28	08:28	07:30		07:54 (1)		06:24			06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (3)	08:22			08:50
	17:15	18:14	6	08:00 (1)		19:05			20:59	21:47	22:07	21:39	20:38	19:25	17:18	29 08:23 (2)	16:31			16:30
29	08:27					07:22			06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (3)	08:23			08:50
	17:17					20:06			21:01	21:48	22:06	21:38	20:36	19:23	17:16	28 08:24 (2)	16:30			16:30
30	08:25					07:20			06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25			08:50
	17:19					20:08			21:03	21:49	22:06	21:36	20:34	19:20	17:14	26 08:24 (2)	16:29			16:31
31	08:24					07:17				05:23		05:55	06:46		07:32	08:00 (2)				08:50
	17:21					20:10				21:50		21:34	20:31		17:12	24 08:24 (2)				16:32
Potential sun hours	256	276		367		418	489	503	506	456	381	330		263		240			
Total, worst case			340		115								343		118				
Sun reduction			0.21		0.24								0.24		0.19				
Oper. time red.			1.00		1.00								1.00		1.00				
Wind dir. red.			0.66		0.68								0.67		0.66				
Total reduction			0.14		0.16								0.16		0.12				
Total, real			47		19								55		15				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BS - H71

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	21:11 (2)	05:18	21:22 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	7 21:18 (2)	22:06	9 21:31 (2)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	21:11 (2)	05:19	21:22 (2)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	8 21:19 (2)	22:05	9 21:31 (2)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	21:13 (2)	05:20	21:21 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	8 21:21 (2)	22:05	9 21:30 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	21:13 (2)	05:21	21:21 (2)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	8 21:21 (2)	22:04	9 21:30 (2)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	21:13 (2)	05:21	21:21 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	9 21:22 (2)	22:04	9 21:30 (2)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	21:14 (2)	05:22	21:21 (2)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	9 21:23 (2)	22:03	9 21:30 (2)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:14 (2)	05:23	21:20 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	10 21:24 (2)	22:03	9 21:29 (2)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:15 (2)	05:24	21:20 (2)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	10 21:25 (2)	22:02	9 21:29 (2)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:16 (2)	05:25	21:19 (2)	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	10 21:26 (2)	22:01	8 21:27 (2)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:16 (2)	05:26	21:19 (2)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	10 21:26 (2)	22:01	8 21:27 (2)	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	21:17 (2)	05:27	21:19 (2)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	10 21:27 (2)	22:00	7 21:26 (2)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:18 (2)	05:28	21:20 (2)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	10 21:28 (2)	21:59	6 21:26 (2)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:18 (2)	05:30	21:20 (2)	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	10 21:28 (3)	21:58	5 21:25 (2)	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:19 (2)	05:31	21:19 (2)	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	10 21:29 (3)	21:57	5 21:24 (2)	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:20 (2)	05:32	21:19 (2)	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	9 21:29 (3)	21:56	4 21:23 (2)	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:21 (2)	05:33	21:19 (2)	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	9 21:30 (3)	21:55	3 21:22 (2)	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	21:22 (2)	05:34	21:19 (2)	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	7 21:30 (3)	21:54	2 21:21 (2)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	21:23 (2)	05:36	21:19 (2)	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	6 21:30 (3)	21:53	1 21:20 (2)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	21:26 (3)	05:37		06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	5 21:31 (3)	21:52		20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	21:27 (3)	05:38		06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	4 21:31 (3)	21:50		20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	21:28 (3)	05:40		06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	4 21:32 (3)	21:49		20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	21:28 (3)	05:41		06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	4 21:32 (3)	21:48		20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	21:28 (3)	05:43		06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	4 21:32 (3)	21:46		20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	21:24 (2)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	6 21:32 (3)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	21:09 (2) 05:15	21:24 (2)	05:45		06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	1 21:10 (2) 22:07	7 21:32 (3)	21:44		20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	21:09 (2) 05:16	21:23 (2)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	2 21:11 (2) 22:07	9 21:32 (3)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	21:09 (2) 05:16	21:23 (2)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	3 21:12 (2) 22:06	9 21:32 (3)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	21:10 (2) 05:17	21:22 (2)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	3 21:13 (2) 22:06	10 21:32 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	21:11 (2) 05:17	21:23 (2)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	4 21:15 (2) 22:06	9 21:32 (3)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	21:11 (2) 05:18	21:22 (2)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	5 21:16 (2) 22:06	9 21:31 (2)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	21:11 (2)		05:55		06:46		07:32		08:50
	17:21		20:10		21:50	6 21:17 (2)		21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					24	240	121					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.65	0.65	0.65					
Total reduction					0.24	0.19	0.17					
Total, real					6	47	21					

Clare County Council Planning Authority Inspection Purposes Only!

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BT - H72

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:51 (1)	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:02 (2)	08:26
	16:34	17:23	18:16 (3)	07:54 (1)	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10 (15)	08:17 (2)	16:28
2	08:50	08:21	07:25	07:49 (1)	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:04 (2)	08:28
	16:35	17:25	18:18 (6)	07:55 (1)	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08 (13)	08:17 (2)	16:28
3	08:50	08:19	07:23	07:47 (1)	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:06 (2)	08:29
	16:36	17:27	18:20 (9)	07:56 (1)	20:15	21:08	21:54	22:05	21:29	20:24	19:13 (6)	08:24 (1)	17:06 (11)	08:17 (2)	16:27
4	08:50	08:17	07:21	07:44 (1)	07:08	06:03	05:19	05:21	06:01	06:53	07:43	08:15 (1)	07:39	08:08 (2)	08:31
	16:37	17:29	18:22 (11)	07:55 (1)	20:17	21:09	21:55	22:05	21:27	20:22	19:11 (12)	08:27 (1)	17:04 (8)	08:16 (2)	16:26
5	08:50	08:16	08:42 (2)	07:18	07:42 (1)	07:06	06:01	05:19	05:22	06:03	06:54	07:45	08:13 (1)	07:41	08:10 (2)	08:32
	16:38	17:30 (2)	08:44 (2)	18:23 (13)	07:55 (1)	20:19	21:11	21:56	22:04	21:26	20:20	19:08 (16)	08:29 (1)	17:03 (5)	08:15 (2)	16:26
6	08:49	08:14	08:40 (2)	07:16	07:40 (1)	07:03	05:59	05:18	05:22	06:04	06:56	07:47	08:13 (1)	07:43	08:12 (2)	08:33
	16:40	17:32 (5)	08:45 (2)	18:25 (15)	07:55 (1)	20:21	21:13	21:57	22:04	21:24	20:17	19:06 (17)	08:30 (1)	17:01 (2)	08:14 (2)	16:25
7	08:49	08:12	08:38 (2)	07:14	07:37 (1)	07:01	05:57	05:17	05:23	06:06	06:58	07:49	08:14 (1)	07:45		08:35
	16:41	17:34 (8)	08:46 (2)	18:27 (16)	07:53 (1)	20:22	21:15	21:58	22:03	21:22	20:15	19:04 (16)	08:30 (1)	16:59		16:25
8	08:48	08:10	08:36 (2)	07:11	07:36 (1)	06:59	05:55	05:17	05:24	06:08	06:59	07:50	08:16 (1)	07:47		08:36
	16:42	17:36 (11)	08:47 (2)	18:29 (16)	07:52 (1)	20:24	21:16	21:59	22:02	21:20	20:13	19:01 (14)	08:30 (1)	16:57		16:24
9	08:48	08:09	08:34 (2)	07:09	07:37 (1)	06:56	05:53	05:16	05:25	06:09	07:01	07:52	08:18 (1)	07:49		08:37
	16:44	17:38 (14)	08:48 (2)	18:31 (14)	07:51 (1)	20:26	21:18	22:00	22:02	21:18	20:10	18:59 (12)	08:30 (1)	16:56		16:24
10	08:47	08:07	08:32 (2)	07:07	07:38 (1)	06:54	05:52	05:16	05:26	06:11	07:03	07:54	08:20 (1)	07:50		08:38
	16:45	17:40 (16)	08:48 (2)	18:33 (10)	07:48 (1)	20:28	21:20	22:01	22:01	21:16	20:08	18:57 (10)	08:30 (1)	16:54		16:24
11	08:47	08:05	08:30 (2)	07:05		06:52	05:50	05:15	05:27	06:12	07:04	07:56	08:22 (1)	07:52		08:39
	16:46	17:42 (18)	08:48 (2)	18:34		20:29	21:21	22:01	22:00	21:14	20:06	18:55 (8)	08:30 (1)	16:52		16:24
12	08:46	08:03	08:28 (2)	07:02		06:49	05:48	05:15	05:28	06:14	07:06	07:57	08:24 (1)	07:54		08:40
	16:48	17:44 (20)	08:48 (2)	18:36		20:31	21:23	22:02	21:59	21:12	20:03	18:52 (5)	08:29 (1)	16:51		16:24
13	08:45	08:01	08:26 (2)	07:00		06:47	05:47	05:15	05:30	06:16	07:08	07:59	08:25 (1)	07:56		08:41
	16:49	17:46 (22)	08:48 (2)	18:38		20:33	21:25	22:03	21:58	21:10	20:01	18:50 (2)	08:27 (1)	16:49		16:24
14	08:44	07:59	08:24 (2)	06:58		06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58		08:42
	16:51	17:48 (24)	08:48 (2)	18:40		20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48		16:24
15	08:44	07:57	08:22 (3)	06:55		06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:43
	16:53	17:50 (26)	08:48 (2)	18:42		20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46		16:24
16	08:43	07:55	08:20 (3)	06:53		06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:44
	16:54	17:52 (27)	08:47 (2)	18:43		20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45		16:24
17	08:42	07:53	08:18 (3)	06:50		06:38	05:40	05:14	05:34	06:22	07:15	08:06		08:03		08:45
	16:56	17:53 (29)	08:47 (2)	18:45		20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43		16:24
18	08:41	07:51	08:19 (3)	06:48		06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:46
	16:58	17:55 (27)	08:46 (2)	18:47		20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42		16:24
19	08:40	07:49	08:20 (3)	06:46		06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:46
	16:59	17:57 (24)	08:44 (2)	18:49		20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41		16:24
20	08:39	07:47	08:28 (2)	06:43		06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08		08:47
	17:01	17:59 (14)	08:42 (2)	18:50		20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39		16:25
21	08:38	07:45	08:31 (2)	06:41		06:29	05:34	05:14	05:40	06:29	07:21	08:14	09:00 (2)	08:10		08:48
	17:03	18:01 (7)	08:38 (2)	18:52		20:47	21:37	22:06	21:49	20:54	19:42	18:32 (10)	09:10 (2)	16:38		16:25
22	08:36	07:43	06:39			06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:52 (3)	08:12		08:48
	17:04	18:03	18:54			20:49	21:38	22:06	21:48	20:51	19:39	18:30 (20)	09:13 (2)	16:37		16:26
23	08:35	07:40	06:36			06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:49 (3)	08:14		08:49
	17:06	18:05	18:56			20:50	21:40	22:07	21:47	20:49	19:37	18:28 (25)	09:14 (2)	16:36		16:26
24	08:34	07:38	06:34			06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:48 (3)	08:15		08:49
	17:08	18:07	18:58			20:52	21:41	22:07	21:45	20:47	19:34	18:26 (27)	09:15 (2)	16:35		16:27
25	08:33	07:36	06:32			06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (3)	08:17		08:49
	17:10	18:09	18:59			20:54	21:43	22:07	21:44	20:45	19:32	17:24 (28)	08:16 (2)	16:34		16:27
26	08:31	07:34	06:29			06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (3)	08:19		08:50
	17:12	18:10	19:01			20:56	21:44	22:07	21:42	20:43	19:30	17:22 (27)	08:17 (2)	16:33		16:28
27	08:30	07:32	06:27			06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20		08:50
	17:13	18:12	19:03			20:57	21:45	22:07	21:41	20:40	19:27	17:20 (25)	08:17 (2)	16:32		16:29
28	08:28	07:30	06:24			06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22		08:50
	17:15	18:14	19:05			20:59	21:47	22:07	21:39	20:38	19:25	17:18 (24)	08:18 (2)	16:31		16:30
29	08:27		07:22			06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23		08:50
	17:17		20:06			21:01	21:48	22:06	21:38	20:36	19:23	17:16 (22)	08:18 (2)	16:30		16:30
30	08:25		07:20			06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25		08:50
	17:19		20:08			21:03	21:49	22:06	21:36	20:34	19:20	17:14 (20)	08:18 (2)	16:29		16:31
31	08:24		07:17				05:23		05:55	06:46		07:32	08:00 (2)			08:50
	17:21		20:10				21:50		21:34	20:31		17:12 (18)	08:18 (2)			16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case		294	113							364	54	
Sun reduction		0.21	0.24							0.24	0.19	
Oper. time red.		1.00	1.00							1.00	1.00	
Wind dir. red.		0.67	0.67							0.67	0.67	
Total reduction		0.14	0.16							0.16	0.12	
Total, real		41	19							58	7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BU - H73

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	21:09 (2)	05:18	21:17 (3)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	21:18 (3)	22:06	21:31 (3)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	21:11 (3)	05:19	21:17 (3)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	21:19 (3)	22:05	21:32 (3)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	21:11 (3)	05:20	21:17 (3)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	21:21 (3)	22:05	21:30 (3)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	21:11 (3)	05:21	21:17 (3)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	21:21 (3)	22:04	21:30 (3)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	21:11 (3)	05:21	21:17 (3)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	21:22 (3)	22:04	21:30 (3)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	21:11 (3)	05:22	21:18 (3)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	21:23 (3)	22:03	21:30 (3)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:11 (3)	05:23	21:18 (3)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	21:24 (3)	22:03	21:29 (3)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:12 (3)	05:24	21:18 (3)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	21:25 (3)	22:02	21:29 (3)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:12 (3)	05:25	21:18 (3)	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	21:26 (3)	22:01	21:27 (3)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:12 (3)	05:26	21:18 (3)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	21:26 (3)	22:01	21:27 (3)	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	21:12 (3)	05:27	21:17 (2)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	21:27 (3)	22:00	21:26 (3)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:13 (3)	05:28	21:16 (2)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:28 (3)	21:59	21:25 (3)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:12 (3)	05:30	21:15 (2)	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:28 (3)	21:58	21:25 (2)	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:13 (3)	05:31	21:15 (2)	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:29 (3)	21:57	21:24 (2)	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:13 (3)	05:32	21:14 (2)	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:29 (3)	21:56	21:23 (2)	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:13 (3)	05:33	21:13 (2)	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:30 (3)	21:55	21:22 (2)	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	21:14 (3)	05:34	21:12 (2)	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:30 (3)	21:54	21:21 (2)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	21:14 (3)	05:36	21:12 (2)	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:30 (3)	21:53	21:20 (2)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	21:01 (2)	05:14	21:14 (3)	05:37	21:12 (2)	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	2 21:03 (2)	22:05	21:31 (3)	21:52	21:20 (2)	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	21:01 (2)	05:14	21:14 (3)	05:38	21:12 (2)	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	2 21:03 (2)	22:06	21:31 (3)	21:50	21:18 (2)	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	21:01 (2)	05:14	21:15 (3)	05:40	21:11 (2)	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	4 21:05 (2)	22:06	21:32 (3)	21:49	21:17 (2)	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	21:01 (2)	05:14	21:15 (3)	05:41	21:11 (2)	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	6 21:07 (2)	22:06	21:32 (3)	21:48	21:15 (2)	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	21:02 (2)	05:15	21:15 (3)	05:43	21:11 (2)	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	6 21:08 (2)	22:06	21:32 (3)	21:46	21:15 (2)	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	21:01 (2)	05:15	21:15 (3)	05:44	21:11 (2)	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	7 21:08 (2)	22:06	21:32 (3)	21:45	21:13 (2)	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	21:02 (2)	05:15	21:16 (3)	05:45	21:12 (2)	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	8 21:10 (2)	22:07	21:32 (3)	21:44	1 21:13 (2)	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	21:03 (2)	05:16	21:15 (3)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	8 21:11 (2)	22:07	21:32 (3)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	21:03 (2)	05:16	21:16 (3)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	9 21:12 (2)	22:06	21:32 (3)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	21:04 (2)	05:17	21:16 (3)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	9 21:13 (2)	22:06	21:32 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	21:06 (2)	05:17	21:17 (3)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	9 21:15 (2)	22:06	21:32 (3)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	21:07 (2)	05:18	21:16 (3)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	9 21:16 (2)	22:06	21:31 (3)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	21:08 (2)			05:55		06:46		07:32		08:50
	17:21		20:10		21:50	9 21:17 (2)			21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					88	438	223					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.66	0.65	0.66					
Total reduction					0.24	0.19	0.17					
Total, real					21	85	39					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BV - H74

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:13	07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BW - H75

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June	July		August		September	October	November	December
1	08:50	08:22	07:27	07:15	06:09		05:22	05:19		05:56	06:26 (3)	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:52	22:06		21:33	4 06:30 (3)	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07		05:21	05:19		05:58	06:27 (3)	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	22:05		21:31	2 06:29 (3)	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05		05:20	05:20		05:59		06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08		21:54	22:05		21:29		20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03		05:19	05:21		06:01		06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09		21:55	22:05		21:27		20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01		05:19	05:22		06:03		06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	22:04		21:26		20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18	05:22		06:04		06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13		21:57	22:04		21:24		20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17	05:23		06:06		06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15		21:58	22:03		21:22		20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		05:17	05:24		06:08		06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16		21:59	22:02		21:20		20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53		05:16	05:25		06:09		07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18		22:00	22:02		21:18		20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	06:18 (3)	05:16	05:26		06:11		07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	1 06:19 (3)	22:00	22:01		21:16		20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	06:16 (3)	05:15	05:27		06:13		07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	3 06:19 (3)	22:01	22:00		21:14		20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	06:15 (3)	05:15	05:29		06:14		07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	5 06:20 (3)	22:02	21:59		21:12		20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	06:13 (3)	05:15	05:30		06:16		07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	7 06:20 (3)	22:03	21:58		21:10		20:01	18:50	16:49	16:24
14	08:44	07:59	06:58	06:45	05:45	06:12 (3)	05:15	05:31	06:17 (3)	06:17		07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	9 06:21 (3)	22:03	21:57	5 06:22 (3)	21:08		19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	06:10 (3)	05:14	05:32	06:15 (3)	06:19		07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	11 06:21 (3)	22:04	21:56	9 06:24 (3)	21:06		19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	06:09 (3)	05:14	05:33	06:13 (3)	06:21		07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	12 06:21 (3)	22:04	21:55	12 06:25 (3)	21:04		19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	06:07 (3)	05:14	05:35	06:12 (3)	06:23		07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	13 06:20 (3)	22:05	21:54	14 06:26 (3)	21:02		19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	06:06 (3)	05:14	05:36	06:12 (3)	06:24		07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	15 06:21 (3)	22:05	21:53	16 06:28 (3)	21:00		19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	06:05 (3)	05:14	05:37	06:12 (3)	06:26		07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	16 06:21 (3)	22:06	21:52	16 06:28 (3)	20:58		19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	06:03 (3)	05:14	05:39	06:11 (3)	06:28		07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	17 06:20 (3)	22:06	21:50	18 06:29 (3)	20:56		19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	06:02 (3)	05:14	05:40	06:10 (3)	06:29		07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	18 06:20 (3)	22:06	21:49	19 06:29 (3)	20:54		19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	06:01 (3)	05:14	05:41	06:12 (3)	06:31		07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	19 06:20 (3)	22:06	21:48	18 06:30 (3)	20:51		19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	06:01 (3)	05:15	05:43	06:13 (3)	06:33		07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	18 06:19 (3)	22:07	21:47	17 06:30 (3)	20:49		19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	06:02 (3)	05:15	05:44	06:14 (3)	06:34		07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	17 06:19 (3)	22:07	21:45	16 06:30 (3)	20:47		19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	06:02 (3)	05:15	05:46	06:16 (3)	06:36		07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	16 06:18 (3)	22:07	21:44	15 06:31 (3)	20:45		19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	06:03 (3)	05:16	05:47	06:17 (3)	06:38		07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	15 06:18 (3)	22:07	21:42	14 06:31 (3)	20:43		19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	06:04 (3)	05:16	05:49	06:18 (3)	06:39		07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	13 06:17 (3)	22:07	21:41	13 06:31 (3)	20:40		19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	06:06 (3)	05:17	05:50	06:20 (3)	06:41		07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	10 06:16 (3)	22:06	21:39	11 06:31 (3)	20:38		19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	06:07 (3)	05:17	05:52	06:21 (3)	06:43		07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	7 06:14 (3)	22:06	21:38	10 06:31 (3)	20:36		19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24		05:18	05:53	06:23 (3)	06:44		07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49		22:06	21:36	8 06:31 (3)	20:33		19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55	06:24 (3)	06:46			07:32		08:50
	17:21		20:10		21:50			21:34	6 06:30 (3)	20:31			17:12		16:32
Potential sun hours	256	276	367	418	488		503	506		456		381	330	263	240
Total, worst case						242			237		6				
Sun reduction						0.37			0.26		0.30				
Oper. time red.						1.00			1.00		1.00				
Wind dir. red.						0.64			0.64		0.64				
Total reduction						0.24			0.17		0.19				
Total, real						57			40		1				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BX - H76

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November	December
1	08:50		15:57 (3)		08:22		07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	16:27 (1)	08:26	15:41 (3)
	16:34	1	15:58 (3)		17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	13 16:40 (2)	16:28	13 15:54 (3)
2	08:50		15:56 (3)		08:21		07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:36	16:27 (1)	08:28	15:42 (3)
	16:35	2	15:58 (3)		17:25		18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	11 16:38 (2)	16:27	11 15:53 (3)
3	08:50		15:57 (3)		08:19		07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	16:28 (1)	08:29	15:42 (3)
	16:36	3	16:00 (3)		17:26		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	8 16:36 (2)	16:27	10 15:52 (3)
4	08:50		15:57 (3)		08:17		07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	16:28 (1)	08:30	15:43 (3)
	16:37	5	16:02 (3)		17:28		18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	6 16:34 (1)	16:26	9 15:52 (3)
5	08:50		15:57 (3)		08:15		07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	16:29 (1)	08:32	15:43 (3)
	16:38	5	16:02 (3)		17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:19	19:08	17:02	3 16:32 (1)	16:26	7 15:50 (3)
6	08:49		15:58 (3)		08:14	16:59 (1)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33	15:44 (3)
	16:39	6	16:04 (3)		17:32	3 17:02 (1)	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01		16:25	6 15:50 (3)
7	08:49		15:58 (3)		08:12	16:59 (1)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:34	15:44 (3)
	16:41	7	16:05 (3)		17:34	5 17:04 (1)	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59		16:25	6 15:50 (3)
8	08:48		15:58 (3)		08:10	16:58 (1)	07:11	06:58	05:55	05:17	05:24	06:07	06:59	07:50	07:47		08:36	15:44 (3)
	16:42	8	16:06 (3)		17:36	8 17:06 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57		16:24	5 15:49 (3)
9	08:48		15:59 (3)		08:08	16:58 (1)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48		08:37	15:46 (3)
	16:43	10	16:09 (3)		17:38	10 17:08 (2)	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:55		16:24	3 15:49 (3)
10	08:47		15:59 (3)		08:07	16:57 (1)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		08:38	15:46 (3)
	16:45	11	16:10 (3)		17:40	13 17:10 (2)	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54		16:24	2 15:48 (3)
11	08:47		15:59 (3)		08:05	16:57 (1)	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52		08:39	15:47 (3)
	16:46	12	16:11 (3)		17:42	16 17:13 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52		16:24	1 15:48 (3)
12	08:46		15:59 (3)		08:03	16:58 (1)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54		08:40	15:47 (3)
	16:48	14	16:13 (3)		17:44	17 17:15 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51		16:23	1 15:48 (3)
13	08:45		16:00 (3)		08:01	16:58 (1)	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56		08:41	
	16:49	14	16:14 (3)		17:46	19 17:17 (2)	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49		16:23	
14	08:44		16:00 (3)		07:59	16:58 (1)	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58		08:42	
	16:51	16	16:16 (3)		17:48	21 17:19 (2)	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47		16:23	
15	08:44		16:01 (3)		07:57	16:59 (1)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59		08:43	
	16:52	17	16:18 (3)		17:49	22 17:21 (1)	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46		16:23	
16	08:43		16:01 (3)		07:55	17:00 (1)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01		08:44	
	16:54	19	16:20 (3)		17:51	22 17:22 (1)	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45		16:24	
17	08:42		16:02 (3)		07:53	17:01 (1)	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	15:47 (3)	08:45	
	16:56	20	16:22 (3)		17:53	20 17:21 (1)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	5 15:52 (3)	16:24	
18	08:41		16:03 (3)		07:51	17:02 (1)	06:48	06:36	05:38	05:14	05:36	06:24	07:16	08:08	08:05	15:44 (3)	08:46	
	16:57	21	16:24 (3)		17:55	18 17:20 (1)	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	11 15:55 (3)	16:24	
19	08:40		16:04 (3)		07:49	17:03 (1)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	15:43 (3)	08:46	
	16:59	21	16:25 (3)		17:57	14 17:17 (1)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	14 15:57 (3)	16:24	
20	08:39		16:04 (3)		07:47	17:07 (1)	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	15:42 (3)	08:47	
	17:01	20	16:24 (3)		17:59	7 17:14 (1)	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	17 15:59 (3)	16:25	
21	08:37		16:05 (3)		07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	15:42 (3)	08:48	
	17:03	19	16:24 (3)		18:01		18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	18 16:00 (3)	16:25	
22	08:36		16:07 (3)		07:42		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	17:36 (1)	08:12	15:41 (3)	08:48
	17:04	17	16:24 (3)		18:03		18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	10 17:46 (1)	16:37	20 16:01 (3)	16:25
23	08:35		16:08 (3)		07:40		06:36	06:25	05:32	05:15	05:42	06:32	07:25	08:17	17:33 (1)	08:13	15:40 (3)	08:49
	17:06	14	16:22 (3)		18:05		18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	15 17:48 (1)	16:36	21 16:01 (3)	16:26
24	08:34		16:10 (3)		07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	17:31 (1)	08:15	15:40 (3)	08:49
	17:08	11	16:21 (3)		18:07		18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	19 17:50 (1)	16:34	21 16:01 (3)	16:27
25	08:32		16:13 (3)		07:36		06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	16:30 (1)	08:17	15:40 (3)	08:49
	17:10	5	16:18 (3)		18:08		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	21 16:51 (1)	16:33	20 16:00 (3)	16:27
26	08:31				07:34		06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	16:29 (1)	08:18	15:40 (3)	08:50
	17:11				18:10		19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	23 16:52 (1)	16:32	19 15:59 (3)	16:28
27	08:30				07:32		06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	16:28 (1)	08:20	15:41 (3)	08:50
	17:13				18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	22 16:50 (1)	16:31	17 15:58 (3)	16:29
28	08:28				07:29		06:24	06:14	05:26	05:16	05:50	06:41	07:33	07:26	16:28 (1)	08:22	15:40 (3)	08:50
	17:15				18:14		19:04	20:59	21:47	22:06	21:39	20:38	19:25	17:18	20 16:48 (2)	16:31	16 15:56 (3)	16:29
29	08:27						07:22	06:12	05:24	05:17	05:51	06:42	07:35	07:28	16:27 (1)	08:23	15:41 (3)	08:50
	17:17						20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	19 16:46 (2)	16:30	15 15:56 (3)	16:30
30	08:25						07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	16:27 (1)	08:25	15:41 (3)	08:50
	17:19						20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	17 16:44 (2)	16:29	14 15:55 (3)	16:31
31	08:24						07:17		05:23		05:55	06:46		07:32	16:27 (1)			08:50
	17:21						20:10		21:50		21:34	20:31		17:12	15 16:42 (2)			16:32
Potential sun hours	256		276		367	418	489	503	506	456	381	330		263			240	
Total, worst case		298		215									181		269			74
Sun reduction		0.16		0.21									0.24		0.19			0.14
Oper. time red.		1.00		1.00									1.00		1.00			1.00
Wind dir. red.		0.62		0.64									0.64		0.63			0.62
Total reduction		0.10		0.13									0.15		0.12			0.09
Total, real		29		29									28		32			6

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BY - H77

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	21:53	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	21:52	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	21:54	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	21:55	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	21:56	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	21:57	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15	21:58	21:58	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	21:59	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:00	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:27	21:20	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:13	07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:15	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:23	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:39	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:47	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	05:58 (3)	05:15	05:47 (3)	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	1 05:59 (3)	22:07	18	06:05 (3)	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:57 (3)	05:16	05:47 (3)	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	2 05:59 (3)	22:07	18	06:05 (3)	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:56 (3)	05:16	05:48 (3)	05:49	06:39	07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	4 06:00 (3)	22:07	18	06:06 (3)	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:55 (3)	05:17	05:48 (3)	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	5 06:00 (3)	22:06	18	06:06 (3)	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:54 (3)	05:17	05:49 (3)	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	7 06:01 (3)	22:06	17	06:06 (3)	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:53 (3)	05:18	05:49 (3)	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	8 06:01 (3)	22:06	17	06:06 (3)	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	05:52 (3)				05:55	06:46		07:32		08:50
	17:21		20:10		21:50	9 06:01 (3)				21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488		503		506		456	381	330	263	240
Total, worst case					36		494		193						
Sun reduction					0.37		0.30		0.26						
Oper. time red.					1.00		1.00		1.00						
Wind dir. red.					0.62		0.62		0.62						
Total reduction					0.23		0.19		0.17						
Total, real					8		92		32						

Clare County Council Planning Authority Inspection Purposes Only!

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** BZ - H78

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	05:51 (3)	06:09 (3)	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	06:09 (3)	06:12 (3)	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	05:50 (3)	05:19	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	06:09 (3)	06:13 (3)	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	05:50 (3)	05:20	20:25	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	06:09 (3)	06:12 (3)	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	05:49 (3)	05:21	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	06:09 (3)	06:13 (3)	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	05:50 (3)	05:22	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	06:09 (3)	06:14 (3)	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	05:50 (3)	05:22	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	06:08 (3)	06:15 (3)	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15	21:58	05:51 (3)	05:23	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	06:09 (3)	06:15 (3)	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	05:51 (3)	05:22	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	06:08 (3)	06:16 (3)	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	05:52 (3)	05:24	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	06:08 (3)	06:16 (3)	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:00	05:52 (3)	05:25	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	06:07 (3)	06:17 (3)	07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	05:53 (3)	05:27	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	06:08 (3)	06:17 (3)	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	05:54 (3)	05:29	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	06:08 (3)	06:18 (3)	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	05:54 (3)	05:30	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:15	06:08 (3)	06:18 (3)	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	05:54 (3)	05:31	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	06:07 (3)	06:18 (3)	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	05:55 (3)	05:32	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	06:07 (3)	06:18 (3)	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	05:55 (3)	05:33	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	06:07 (3)	06:18 (3)	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	05:56 (3)	05:35	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	06:07 (3)	06:18 (3)	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	05:56 (3)	05:36	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	06:05 (3)	06:07 (3)	06:19 (3)	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	2 06:07 (3)	05:57 (3)	05:37	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	06:03 (3)	06:07 (3)	06:19 (3)	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	4 06:07 (3)	05:58 (3)	05:39	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	06:02 (3)	06:08 (3)	06:19 (3)	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	6 06:08 (3)	05:58 (3)	05:40	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	06:01 (3)	06:08 (3)	06:18 (3)	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	7 06:08 (3)	05:58 (3)	05:41	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	06:00 (3)	06:08 (3)	06:19 (3)	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	9 06:09 (3)	05:57 (3)	05:43	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:59 (3)	06:08 (3)	06:18 (3)	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	10 06:09 (3)	05:58 (3)	05:44	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	05:58 (3)	06:09 (3)	06:14 (3)	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	11 06:09 (3)	05:58 (3)	05:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:57 (3)	06:09 (3)	06:17 (3)	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	13 06:10 (3)	05:57 (3)	05:46	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:56 (3)	06:10 (3)	06:16 (3)	07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	14 06:10 (3)	05:58 (3)	05:47	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:55 (3)	06:10 (3)	06:18 (3)	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	15 06:10 (3)	05:57 (3)	05:50	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:54 (3)	06:10 (3)	06:18 (3)	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	16 06:10 (3)	05:58 (3)	05:52	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:53 (3)	06:11 (3)	06:16 (3)	07:30	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	16 06:09 (3)	05:57 (3)	05:53	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	05:52 (3)	06:11 (3)	06:16 (3)		07:32		08:50
	17:21		20:10		21:50	17 06:09 (3)		05:55		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					140	420	342					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.63	0.63	0.63					
Total reduction					0.23	0.19	0.17					
Total, real					33	79	57					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CA - H79

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50 16:34	08:22 17:23	07:27 18:16	07:15 20:12 5	19:40 (3) 19:45 (3)	06:08 21:04 12	20:23 (1) 20:35 (1)	05:22 21:51	05:18 22:06	05:56 21:33	06:48 20:29 20	19:41 (3) 20:01 (2)	07:38 19:18	07:34 17:10	08:26 16:28
2	08:50 16:35	08:20 17:25	07:25 18:18	07:12 20:13 8	19:39 (3) 19:47 (3)	06:06 21:06 13	20:23 (1) 20:36 (1)	05:21 21:53	05:19 22:05	05:58 21:31	06:49 20:26 20	19:39 (3) 19:59 (2)	07:40 19:15	07:35 17:08	08:28 16:27
3	08:50 16:36	08:19 17:26	07:23 18:20	07:10 20:15 10	19:38 (3) 19:48 (3)	06:04 21:08 14	20:25 (1) 20:39 (1)	05:20 21:54	05:20 22:05	05:59 21:29	06:51 20:24 19	19:37 (3) 19:56 (2)	07:42 19:13	07:37 17:06	08:29 16:27
4	08:50 16:37	08:17 17:28	07:20 18:21	07:08 20:17 13	19:38 (3) 19:51 (3)	06:03 21:09 15	20:25 (1) 20:40 (1)	05:19 21:55	05:21 22:04	06:01 21:27	06:53 20:22 19	19:36 (3) 19:55 (2)	07:43 19:11	07:39 17:04	08:30 16:26
5	08:49 16:38	08:15 17:30	07:18 18:23	07:05 20:19 15	19:38 (3) 19:53 (3)	06:01 21:11 15	20:26 (1) 20:41 (1)	05:18 21:56	05:21 22:04	06:03 21:25 5	20:41 (1) 06:54 20:46 (1)	19:34 (3) 20:19 18	07:45 19:52 (3)	07:41 19:08	08:32 17:02	16:26
6	08:49 16:39	08:14 17:32	07:16 18:25	07:03 20:20 17	19:37 (3) 19:54 (3)	05:59 21:13 14	20:27 (1) 20:41 (1)	05:18 21:57	05:22 22:03	06:04 21:24 11	20:38 (1) 20:49 (1)	06:56 20:17 16	19:34 (3) 19:50 (3)	07:47 19:06	07:43 17:01	08:33 16:25
7	08:49 16:41	08:12 17:34	07:14 18:27	07:01 20:22 18	19:38 (3) 19:56 (3)	05:57 21:14 9	20:30 (1) 20:39 (1)	05:17 21:58	05:23 22:03	06:06 21:22 15	20:37 (1) 20:52 (1)	06:58 20:15 15	19:33 (3) 19:48 (3)	07:49 19:04	07:45 16:59	08:34 16:25
8	08:48 16:42	08:10 17:36	07:11 18:29	06:58 20:24 18	19:39 (3) 19:57 (2)	05:55 21:16		05:17 21:59	05:24 22:02	06:07 21:20 15	20:35 (1) 20:50 (1)	06:59 20:12 13	19:32 (3) 19:45 (3)	07:50 19:01	07:47 16:57	08:36 16:24
9	08:48 16:43	08:08 17:38	07:09 18:31	06:56 20:26 19	19:39 (3) 19:58 (2)	05:53 21:18		05:16 22:00	05:25 22:01	06:09 21:18 15	20:34 (1) 20:49 (1)	07:01 20:10 11	19:32 (3) 19:43 (3)	07:52 18:59	07:48 16:55	08:37 16:24
10	08:47 16:45	08:06 17:40	07:07 18:32	06:54 20:27 20	19:40 (3) 20:00 (2)	05:52 21:19		05:16 22:00	05:26 22:01	06:11 21:16 14	20:33 (1) 20:47 (1)	07:03 20:08 9	19:32 (3) 19:41 (3)	07:54 18:57	07:50 16:54	08:38 16:24
11	08:47 16:46	08:05 17:42	07:04 18:34	06:52 20:29 20	19:42 (3) 20:02 (2)	05:50 21:21		05:15 22:01	05:27 22:00	06:12 21:14 12	20:33 (1) 20:45 (1)	07:04 20:05 6	19:32 (3) 19:38 (3)	07:56 18:54	07:52 16:52	08:39 16:24
12	08:46 16:48	08:03 17:44	07:02 18:36	06:49 20:31 13	19:46 (3) 20:04 (2)	05:48 21:23		05:15 22:02	05:28 21:59	06:14 21:12 11	20:32 (1) 20:43 (1)	07:06 20:03 4	19:32 (3) 19:36 (3)	07:57 18:52	07:54 16:51	08:40 16:23
13	08:45 16:49	08:01 17:46	07:00 18:38	06:47 20:33 9	19:56 (2) 20:05 (2)	05:46 21:24		05:15 22:02	05:29 21:58	06:16 21:10 9	20:32 (1) 20:41 (1)	07:08 20:01 1	19:32 (3) 19:33 (3)	07:59 18:50	07:56 16:49	08:41 16:23
14	08:44 16:51	07:59 17:48	06:57 18:40	06:45 20:34 9	19:58 (2) 20:07 (2)	05:45 21:26		05:14 22:03	05:31 21:57	06:17 21:08 8	20:31 (1) 20:39 (1)	07:09 19:58		08:01 18:48	07:58 16:48	08:42 16:23
15	08:43 16:52	07:57 17:49	06:55 18:41	06:43 20:36		05:43 21:28		05:14 22:04	05:32 21:56	06:19 21:06 6	20:31 (1) 20:37 (1)	07:11 19:56		08:03 18:45	07:59 16:46	08:43 16:23
16	08:43 16:54	07:55 17:51	06:53 18:43	06:40 20:38		05:42 21:29		05:14 22:04	05:33 21:55	06:21 21:04 5	20:31 (1) 20:36 (1)	07:13 19:53		08:04 18:43	08:01 16:45	08:44 16:24
17	08:42 16:56	07:53 17:53	06:50 18:45	06:38 20:40		05:40 21:31		05:14 22:05	05:34 21:54	06:22 21:02 2	20:31 (1) 20:33 (1)	07:14 19:51		08:06 18:41	08:03 16:43	08:45 16:24
18	08:41 16:57	07:51 17:55	06:48 18:47	06:36 20:41		05:39 21:32		05:14 22:05	05:36 21:53	06:24 21:00		07:16 19:49		08:08 18:39	08:05 16:42	08:45 16:24
19	08:40 16:59	07:49 17:57	06:46 18:49	06:34 20:43		05:37 21:34		05:14 22:05	05:37 21:52	06:26 20:58		07:18 19:46		08:10 18:37	08:06 16:40	08:46 16:24
20	08:38 17:01	07:47 17:59	06:43 18:50	06:31 20:45		05:36 21:35		05:14 22:06	05:38 21:50	06:27 20:56		07:19 19:44		08:12 18:34	08:08 16:39	08:47 16:25
21	08:37 17:03	07:45 18:01	06:41 18:52	06:29 20:47		05:34 21:37		05:14 22:06	05:40 21:49	06:29 20:53		07:21 19:41		08:13 18:32	08:10 16:38	08:47 16:25
22	08:36 17:04	07:42 18:03	06:38 18:54	06:27 20:48		05:33 21:38		05:14 22:06	05:41 21:48	06:31 20:51		07:23 19:39		08:15 18:30	08:12 16:37	08:48 16:25
23	08:35 17:06	07:40 18:05	06:36 18:56	06:25 20:50		05:32 21:40		05:15 22:06	05:43 21:46	06:32 20:49		07:25 19:37		08:17 18:28	08:13 16:36	08:48 16:26
24	08:34 17:08	07:38 18:07	06:34 18:57	06:23 20:52		05:30 21:41		05:15 22:07	05:44 21:45	06:34 20:47		07:26 19:34		08:19 18:26	08:15 16:34	08:49 16:27
25	08:32 17:10	07:36 18:08	06:31 18:59	06:21 20:54		05:29 21:42		05:15 22:07	05:45 21:44	06:36 20:45		07:28 19:32		07:21 17:24	08:17 16:33	08:49 16:27
26	08:31 17:12	07:34 18:10	06:29 19:01	06:19 20:55 3	20:24 (1) 20:27 (1)	05:28 21:44		05:16 22:07	05:47 21:42	06:37 20:42		07:30 19:30		07:23 17:22	08:18 16:32	08:50 16:28
27	08:30 17:13	07:32 18:12	06:27 19:03	06:17 20:57 5	20:24 (1) 20:29 (1)	05:27 21:45		05:16 22:06	05:48 21:41	06:39 20:40		07:31 19:27		07:24 17:20	08:20 16:31	08:50 16:29
28	08:28 17:15	07:29 18:14	06:24 19:04	06:14 20:59 7	20:23 (1) 20:30 (1)	05:26 21:47		05:17 22:06	05:50 21:39	06:41 20:38 2	20:04 (2) 20:06 (2)	07:33 19:25		07:26 17:18	08:21 16:31	08:50 16:29
29	08:27 17:17		07:22 20:06	06:12 21:01 9	20:23 (1) 20:32 (1)	05:25 21:48		05:17 22:06	05:51 21:37	06:43 20:36 9	19:59 (2) 20:08 (2)	07:35 19:22		07:28 17:16	08:23 16:30	08:50 16:30
30	08:25 17:19		07:20 20:08	06:10 21:02 10	20:23 (1) 20:33 (1)	05:24 21:49		05:18 22:06	05:53 21:36	06:44 20:33 9	19:57 (2) 20:06 (2)	07:36 19:20		07:30 17:14	08:25 16:29	08:50 16:31
31	08:24 17:21		07:17 20:10 3	19:40 (3) 19:43 (3)		05:23 21:50			05:55 21:34	06:46 20:31 13	19:45 (3) 20:03 (2)			07:32 17:12		08:50 16:32
Potential sun hours	256	276	367	418		488		503	506	456		381		330	263	240
Total, worst case			3	228		92				161		171				
Sun reduction			0.24	0.35		0.37				0.30		0.28				
Oper. time red.			1.00	1.00		1.00				1.00		1.00				
Wind dir. red.			0.68	0.68		0.68				0.68		0.68				
Total reduction			0.17	0.24		0.25				0.20		0.19				
Total, real			0	55		23				32		33				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CB - H80

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22		05:19	05:50 (3)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52		22:06	7 05:57 (3)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21		05:19	05:51 (3)	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53		22:05	7 05:58 (3)	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20		05:20	05:51 (3)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54		22:05	6 05:57 (3)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:49 (3)	05:21	05:52 (3)	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	1 05:50 (3)	22:05	5 05:57 (3)	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:49 (3)	05:22	05:53 (3)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	2 05:51 (3)	22:04	5 05:58 (3)	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:48 (3)	05:22	05:54 (3)	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	3 05:51 (3)	22:04	4 05:58 (3)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:48 (3)	05:23	05:55 (3)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15	21:58	4 05:52 (3)	22:03	3 05:58 (3)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:47 (3)	05:24	05:56 (3)	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	5 05:52 (3)	22:02	2 05:58 (3)	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:47 (3)	05:25	05:57 (3)	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	6 05:53 (3)	22:02	1 05:58 (3)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:46 (3)	05:26		06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:27	21:20	22:00	6 05:52 (3)	22:01		21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:46 (3)	05:27		06:13	07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	7 05:53 (3)	22:00		21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:46 (3)	05:29		06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	7 05:53 (3)	21:59		21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:46 (3)	05:30		06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	8 05:54 (3)	21:58		21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:15	05:45 (3)	05:31		06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	8 05:53 (3)	21:57		21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:45 (3)	05:32		06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	9 05:54 (3)	21:56		21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:45 (3)	05:33		06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	9 05:54 (3)	21:55		21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:45 (3)	05:35		06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	9 05:54 (3)	21:54		21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:45 (3)	05:36		06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	9 05:54 (3)	21:53		21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:45 (3)	05:37		06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	10 05:55 (3)	21:52		20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:45 (3)	05:39		06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	10 05:55 (3)	21:50		20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:46 (3)	05:40		06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	10 05:56 (3)	21:49		20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:46 (3)	05:41		06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	10 05:56 (3)	21:48		20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:46 (3)	05:43		06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	10 05:56 (3)	21:47		20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:47 (3)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	10 05:57 (3)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:32	06:21	05:29	05:15	05:47 (3)	05:46		06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	9 05:56 (3)	21:44		20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47 (3)	05:47		06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	9 05:56 (3)	21:42		20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48 (3)	05:49		06:39	07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	22:07	9 05:57 (3)	21:41		20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:48 (3)	05:50		06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	9 05:57 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:49 (3)	05:52		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	8 05:57 (3)	21:38		20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:49 (3)	05:53		06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	8 05:57 (3)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55		06:46		07:32		08:50
	17:21		20:10		21:50			21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503		506		456	381	330	263	240
Total, worst case						205		40						
Sun reduction						0.30		0.26						
Oper. time red.						1.00		1.00						
Wind dir. red.						0.63		0.63						
Total reduction						0.19		0.17						
Total, real						38		7						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Planning Authority - Inspection Purposes Only!

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CC - H81

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CD - H82

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	21:07 (3)	05:18	21:14 (3)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	11 21:18 (3)	22:06	17 21:31 (3)	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	21:07 (3)	05:19	21:14 (3)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	12 21:19 (3)	22:05	18 21:32 (3)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	21:07 (3)	05:20	21:13 (3)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	14 21:21 (3)	22:05	17 21:30 (3)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	21:07 (3)	05:21	21:14 (3)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	14 21:21 (3)	22:04	16 21:30 (3)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	21:07 (3)	05:21	21:14 (3)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	15 21:22 (3)	22:04	16 21:30 (3)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	21:08 (3)	05:22	21:14 (3)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	15 21:23 (3)	22:03	16 21:30 (3)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:08 (3)	05:23	21:14 (3)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	16 21:24 (3)	22:03	15 21:29 (3)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:08 (3)	05:24	21:15 (3)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	17 21:25 (3)	22:02	14 21:29 (3)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:09 (3)	05:25	21:14 (3)	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	21:59	17 21:26 (3)	22:01	13 21:27 (3)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:09 (3)	05:26	21:14 (3)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	17 21:26 (3)	22:01	13 21:27 (3)	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	21:09 (3)	05:27	21:14 (3)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	18 21:27 (3)	22:00	12 21:26 (3)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:10 (3)	05:28	21:14 (3)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	18 21:28 (3)	21:59	11 21:25 (3)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:10 (3)	05:30	21:15 (3)	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	18 21:28 (3)	21:58	10 21:25 (3)	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:10 (3)	05:31	21:15 (3)	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	19 21:29 (3)	21:57	9 21:24 (3)	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:10 (3)	05:32	21:15 (2)	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	19 21:29 (3)	21:56	8 21:23 (3)	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:11 (3)	05:33	21:14 (2)	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	19 21:30 (3)	21:55	8 21:22 (2)	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	20:58 (2) 05:14	21:11 (3)	05:34	21:12 (2)	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	1 20:59 (2) 22:05	19 21:30 (3)	21:54	9 21:21 (2)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	20:59 (2) 05:14	21:11 (3)	05:36	21:11 (2)	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	2 21:01 (2) 22:05	19 21:30 (3)	21:53	9 21:20 (2)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	20:59 (2) 05:14	21:11 (3)	05:37	21:11 (2)	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	4 21:03 (2) 22:05	20 21:31 (3)	21:52	9 21:20 (2)	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	20:59 (2) 05:14	21:12 (3)	05:38	21:10 (2)	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	4 21:03 (2) 22:06	19 21:31 (3)	21:50	8 21:18 (2)	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	20:59 (2) 05:14	21:13 (3)	05:40	21:10 (2)	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	6 21:05 (2) 22:06	19 21:32 (3)	21:49	7 21:17 (2)	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	21:00 (2) 05:14	21:13 (3)	05:41	21:09 (2)	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	7 21:07 (2) 22:06	19 21:32 (3)	21:48	6 21:15 (2)	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	21:01 (2) 05:15	21:13 (3)	05:43	21:09 (2)	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	7 21:08 (2) 22:06	19 21:32 (3)	21:46	6 21:15 (2)	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	21:00 (2) 05:15	21:12 (3)	05:44	21:09 (2)	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	8 21:08 (2) 22:06	20 21:32 (3)	21:45	4 21:13 (2)	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	21:01 (2) 05:15	21:13 (3)	05:45	21:09 (2)	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	9 21:10 (2) 22:07	19 21:32 (3)	21:44	4 21:13 (2)	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	21:02 (2) 05:16	21:13 (3)	05:47	21:09 (2)	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	9 21:11 (2) 22:07	19 21:32 (3)	21:42	2 21:11 (2)	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	21:03 (2) 05:16	21:14 (3)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	9 21:12 (2) 22:06	18 21:32 (3)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	21:05 (2) 05:17	21:13 (3)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	8 21:13 (3) 22:06	19 21:32 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	21:07 (3) 05:17	21:14 (3)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	8 21:15 (3) 22:06	18 21:32 (3)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	21:07 (3) 05:18	21:13 (3)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	9 21:16 (3) 22:06	18 21:31 (3)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	21:07 (3)		05:55		06:46		07:32		08:50
	17:21		20:10		21:50	10 21:17 (3)		21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					101	524	277					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.66	0.65	0.66					
Total reduction					0.24	0.19	0.17					
Total, real					24	102	48					

Clare Planning Authority Inspection Purposes Only!

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CE - H83

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CF - H84

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22		05:18	21:25 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51		22:06	6 21:31 (2)	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	21:18 (2)	05:19	21:26 (2)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	1 21:19 (2)	22:05	5 21:31 (2)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	21:18 (2)	05:20	21:25 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	3 21:21 (2)	22:05	5 21:30 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	21:18 (2)	05:21	21:25 (2)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	3 21:21 (2)	22:04	5 21:30 (2)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	21:18 (2)	05:21	21:25 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	4 21:22 (2)	22:04	5 21:30 (2)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	21:19 (2)	05:22	21:25 (2)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	4 21:23 (2)	22:03	5 21:30 (2)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:19 (2)	05:23	21:26 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	5 21:24 (2)	22:03	3 21:29 (2)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:20 (2)	05:24	21:26 (2)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	5 21:25 (2)	22:02	3 21:29 (2)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:20 (2)	05:25	21:25 (2)	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	6 21:26 (2)	22:01	2 21:27 (2)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:20 (2)	05:26	21:25 (2)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	6 21:26 (2)	22:01	2 21:27 (2)	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	21:21 (2)	05:27	21:25 (2)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	6 21:27 (2)	22:00	1 21:26 (2)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:22 (2)	05:28		06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	6 21:28 (2)	21:59		21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:21 (2)	05:30		06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	7 21:28 (2)	21:58		21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:22 (2)	05:31		06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	7 21:29 (2)	21:57		21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:22 (2)	05:32		06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	7 21:29 (2)	21:56		21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:23 (2)	05:33		06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	7 21:30 (2)	21:55		21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	21:23 (2)	05:34		06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	7 21:30 (2)	21:54		21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	21:23 (2)	05:36		06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	7 21:30 (2)	21:53		21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	21:23 (2)	05:37		06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	8 21:31 (2)	21:52		20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	21:23 (2)	05:38		06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	8 21:31 (2)	21:50		20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	21:25 (2)	05:40		06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	7 21:32 (2)	21:49		20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	21:25 (2)	05:41		06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	7 21:32 (2)	21:48		20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	21:24 (2)	05:43		06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	8 21:32 (2)	21:46		20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	21:24 (2)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	8 21:32 (2)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	21:25 (2)	05:45		06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	7 21:32 (2)	21:44		20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	21:25 (2)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	7 21:32 (2)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	21:25 (2)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	7 21:32 (2)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	21:25 (2)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	7 21:32 (2)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	21:25 (2)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	7 21:32 (2)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	21:25 (2)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	6 21:31 (2)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55		06:46		07:32		08:50
	17:21		20:10		21:50			21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503		506		456	381	330	263	240
Total, worst case						178		42						
Sun reduction						0.30		0.26						
Oper. time red.						1.00		1.00						
Wind dir. red.						0.65		0.65						
Total reduction						0.19		0.17						
Total, real						35		7						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Incorrect Purpose Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CG - H85

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	08:09 (1)	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	11 08:20 (1)	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	08:07 (1)	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	15 08:22 (1)	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	08:07 (1)	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	15 08:22 (1)	17:06	16:27
4	08:50	08:17	07:21 07:44 (1)	07:08	06:03	05:19	05:21	06:01	06:53	07:43	08:09 (1)	07:39	08:31
	16:37	17:29	18:22 2 07:46 (1)	20:17	21:09	21:55	22:05	21:27	20:22	19:11	14 08:23 (1)	17:04	16:26
5	08:50	08:16	07:18 07:42 (1)	07:06	06:01	05:19	05:22	06:03	06:54	07:45	08:11 (1)	07:41	08:32
	16:38	17:30	18:23 4 07:46 (1)	20:19	21:11	21:56	22:04	21:26	20:20	19:08	12 08:23 (1)	17:03	16:26
6	08:49	08:14	07:16 07:40 (1)	07:03	05:59	05:18	05:22	06:04	06:56	07:47	08:13 (1)	07:43	08:33
	16:40	17:32	18:25 7 07:47 (1)	20:21	21:13	21:57	22:04	21:24	20:17	19:06	10 08:23 (1)	17:01	16:25
7	08:49	08:12	07:14 07:37 (1)	07:01	05:57	05:17	05:23	06:06	06:58	07:49	08:14 (1)	07:45	08:35
	16:41	17:34	18:27 9 07:46 (1)	20:22	21:15	21:58	22:03	21:22	20:15	19:04	8 08:22 (1)	16:59	16:25
8	08:48	08:10	07:11 07:35 (1)	06:59	05:55	05:17	05:24	06:08	06:59	07:50	08:16 (1)	07:47	08:36
	16:42	17:36	18:29 11 07:46 (1)	20:24	21:16	21:59	22:02	21:20	20:13	19:01	6 08:22 (1)	16:57	16:24
9	08:48	08:09	07:09 07:33 (1)	06:56	05:53	05:16	05:25	06:09	07:01	07:52	08:18 (1)	07:49	08:37
	16:44	17:38	18:31 13 07:46 (1)	20:26	21:18	22:00	22:02	21:18	20:10	18:59	3 08:21 (1)	16:56	16:24
10	08:47	08:07	07:07 07:30 (1)	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50	08:38
	16:45	17:40	18:33 15 07:45 (1)	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	16:24
11	08:47	08:05 08:30 (2)	07:05 07:28 (1)	06:52	05:50	05:15	05:27	06:12	07:04	07:56		07:52	08:39
	16:46	17:42 1 08:31 (2)	18:34 16 07:44 (1)	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52	16:24
12	08:46	08:03 08:28 (2)	07:02 07:30 (1)	06:49	05:48	05:15	05:28	06:14	07:06	07:57		07:54	08:40
	16:48	17:44 5 08:33 (2)	18:36 12 07:42 (1)	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	16:24
13	08:45	08:01 08:26 (2)	07:00 07:31 (1)	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56	08:41
	16:49	17:46 8 08:34 (2)	18:38 8 07:39 (1)	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49	16:24
14	08:45	07:59 08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58	08:42
	16:51	17:48 10 08:34 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48	16:24
15	08:44	07:57 08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00	08:43
	16:53	17:50 13 08:35 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46	16:24
16	08:43	07:55 08:20 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:52 (2)	08:01	08:44
	16:54	17:52 15 08:35 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	5 08:57 (2)	16:45	16:24
17	08:42	07:53 08:18 (2)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:48 (2)	08:03	08:45
	16:56	17:53 18 08:36 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	12 09:00 (2)	16:43	16:24
18	08:41	07:51 08:16 (2)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:46 (2)	08:05	08:46
	16:58	17:55 20 08:36 (2)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16 09:02 (2)	16:42	16:24
19	08:40	07:49 08:14 (2)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:43 (3)	08:07	08:46
	16:59	17:57 22 08:36 (2)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	21 09:04 (2)	16:41	16:24
20	08:39	07:47 08:11 (2)	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:41 (3)	08:08	08:47
	17:01	17:59 23 08:34 (2)	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	24 09:05 (2)	16:39	16:25
21	08:38	07:45 08:09 (3)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:40 (3)	08:10	08:48
	17:03	18:01 25 08:34 (2)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	24 09:04 (2)	16:38	16:25
22	08:36	07:43 08:10 (3)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:42 (2)	08:12	08:48
	17:04	18:03 23 08:33 (2)	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	23 09:05 (2)	16:37	16:26
23	08:35	07:40 08:13 (2)	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:44 (2)	08:14	08:49
	17:06	18:05 19 08:32 (2)	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	21 09:05 (2)	16:36	16:26
24	08:34	07:38 08:15 (2)	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:46 (2)	08:15	08:49
	17:08	18:07 15 08:30 (2)	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	19 09:05 (2)	16:35	16:27
25	08:33	07:36 08:17 (2)	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (2)	08:17	08:49
	17:10	18:09 10 08:27 (2)	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	17 08:05 (2)	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (2)	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	15 08:05 (2)	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	12 08:04 (2)	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	10 08:04 (2)	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	7 08:03 (2)	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37 08:13 (1)	07:30	07:58 (2)	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20 3 08:16 (1)	17:14	4 08:02 (2)	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32	08:00 (2)		08:50
	17:21		20:10		21:50		21:34	20:31		17:12	1 08:01 (2)		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330		263	240
Total, worst case		227	97						3	325			
Sun reduction		0.21	0.24						0.28	0.24			
Oper. time red.		1.00	1.00						1.00	1.00			
Wind dir. red.		0.67	0.67						0.67	0.67			
Total reduction		0.14	0.16						0.19	0.16			
Total, real		32	16						1	52			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CH - H86

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CI - H87

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CJ - H88

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

RECEIVED: 09/05/2025
Clare County Council Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CK - H89

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	21:04 (3)	21:12 (3)	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	21:04 (3)	21:13 (3)	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	21:05 (3)	21:12 (3)	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	21:05 (3)	21:12 (3)	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	21:04 (3)	21:12 (3)	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	21:06 (3)	21:12 (3)	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	21:03 (3)	21:12 (3)	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	21:04 (3)	21:12 (3)	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	21:59	21:05 (3)	21:12 (3)	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	21:05 (3)	21:12 (3)	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	21:08 (3)	21:12 (3)	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:09 (3)	21:11 (3)	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:08 (3)	21:12 (3)	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:09 (3)	21:12 (3)	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43 20:56 (2)	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28 1 20:57 (2)	22:04 20	21:09 (3)	21:11 (3)	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42 20:57 (2)	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29 1 20:58 (2)	22:04 19	21:10 (3)	21:12 (3)	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40 20:56 (2)	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31 3 20:59 (2)	22:05 19	21:10 (3)	21:11 (3)	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39 20:57 (2)	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32 4 21:01 (2)	22:05 19	21:11 (3)	21:11 (2)	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37 20:58 (2)	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34 5 21:03 (2)	22:05 18	21:11 (3)	21:10 (2)	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36 20:57 (2)	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35 6 21:03 (2)	22:06 18	21:12 (3)	21:09 (2)	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34 20:58 (2)	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37 7 21:05 (2)	22:06 18	21:12 (3)	21:08 (2)	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33 20:59 (2)	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38 8 21:07 (2)	22:06 18	21:12 (3)	21:08 (2)	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32 21:00 (2)	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40 8 21:08 (2)	22:06 18	21:12 (3)	21:07 (2)	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30 21:00 (2)	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41 8 21:08 (2)	22:06 19	21:11 (3)	21:07 (2)	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29 21:02 (2)	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42 8 21:10 (2)	22:07 19	21:12 (3)	21:08 (2)	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28 21:03 (3)	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44 8 21:11 (3)	22:07 19	21:12 (3)	21:07 (2)	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27 21:03 (3)	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45 9 21:12 (3)	22:06 20	21:12 (3)	21:09 (2)	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26 21:03 (3)	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46 10 21:13 (3)	22:06 20	21:12 (3)	21:07 (2)	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25 21:04 (3)	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48 11 21:15 (3)	22:06 20	21:12 (3)	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24 21:04 (3)	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49 12 21:16 (3)	22:06 19	21:31 (3)	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23 21:04 (3)			05:55	06:46		07:32		08:50
	17:21		20:10		21:50 13 21:17 (3)			21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					122	550	322					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.66	0.66	0.66					
Total reduction					0.24	0.20	0.17					
Total, real					30	107	56					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CL - H90

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
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	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CM - H91

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CN - H92

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22		05:18	21:27 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51		22:06	4 21:31 (2)	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21		05:19	21:27 (2)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53		22:05	4 21:31 (2)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20		05:20	21:27 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54		22:05	3 21:30 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	21:20 (2)	05:21	21:27 (2)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	1 21:21 (2)	22:04	3 21:30 (2)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	21:20 (2)	05:21	21:27 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	2 21:22 (2)	22:04	3 21:30 (2)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	21:21 (2)	05:22	21:27 (2)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	2 21:23 (2)	22:03	3 21:30 (2)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	21:21 (2)	05:23	21:28 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	3 21:24 (2)	22:03	1 21:29 (2)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	21:22 (2)	05:24	21:28 (2)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	3 21:25 (2)	22:02	1 21:29 (2)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	21:22 (2)	05:25		06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	4 21:26 (2)	22:01		21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	21:22 (2)	05:26		06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	4 21:26 (2)	22:01		21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	21:23 (2)	05:27		06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	4 21:27 (2)	22:00		21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	21:23 (2)	05:28		06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	5 21:28 (2)	21:59		21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	21:23 (2)	05:30		06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	5 21:28 (2)	21:58		21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	21:23 (2)	05:31		06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	6 21:29 (2)	21:57		21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	21:24 (2)	05:32		06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	5 21:29 (2)	21:56		21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	21:24 (2)	05:33		06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	6 21:30 (2)	21:55		21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	21:24 (2)	05:34		06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	6 21:30 (2)	21:54		21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	21:25 (2)	05:36		06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	5 21:30 (2)	21:53		21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	21:25 (2)	05:37		06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	6 21:31 (2)	21:52		20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	21:25 (2)	05:38		06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	6 21:31 (2)	21:50		20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	21:26 (2)	05:40		06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	6 21:32 (2)	21:49		20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	21:26 (2)	05:41		06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	6 21:32 (2)	21:48		20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	21:26 (2)	05:43		06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	6 21:32 (2)	21:46		20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	21:26 (2)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	6 21:32 (2)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	21:26 (2)	05:45		06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	6 21:32 (2)	21:44		20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	21:26 (2)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	6 21:32 (2)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	21:27 (2)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	5 21:32 (2)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	21:26 (2)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	6 21:32 (2)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	21:27 (2)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	5 21:32 (2)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	21:26 (2)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	5 21:31 (2)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55		06:46		07:32		08:50
	17:21		20:10		21:50			21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503		506		456	381	330	263	240
Total, worst case						130		22						
Sun reduction						0.30		0.26						
Oper. time red.						1.00		1.00						
Wind dir. red.						0.65		0.65						
Total reduction						0.19		0.17						
Total, real						25		4						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Planning Authority - Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CO - H93

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	08:12 (1)	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	9	08:21 (1)	17:08	16:28
3	08:50	08:19	07:23	07:47 (1)	07:10	06:05	05:20	05:20	05:59	06:51	07:42	08:09 (1)	07:38	08:29
	16:36	17:27	18:20	1	07:48 (1)	20:15	21:08	21:54	22:05	21:29	20:24	19:13	13	08:22 (1)	17:06	16:27
4	08:50	08:17	07:21	07:44 (1)	07:08	06:03	05:19	05:21	06:01	06:53	07:43	08:09 (1)	07:39	08:31
	16:37	17:29	18:22	4	07:48 (1)	20:17	21:09	21:55	22:05	21:27	20:22	19:11	14	08:23 (1)	17:04	16:26
5	08:50	08:16	07:18	07:42 (1)	07:06	06:01	05:19	05:22	06:03	06:54	07:45	08:11 (1)	07:41	08:32
	16:38	17:30	18:23	7	07:49 (1)	20:19	21:11	21:56	22:04	21:26	20:20	19:08	13	08:24 (1)	17:03	16:26
6	08:49	08:14	07:16	07:40 (1)	07:03	05:59	05:18	05:22	06:04	06:56	07:47	08:13 (1)	07:43	08:33
	16:40	17:32	18:25	9	07:49 (1)	20:21	21:13	21:57	22:04	21:24	20:17	19:06	12	08:25 (1)	17:01	16:25
7	08:49	08:12	07:14	07:37 (1)	07:01	05:57	05:17	05:23	06:06	06:58	07:49	08:14 (1)	07:45	08:35
	16:41	17:34	18:27	11	07:48 (1)	20:22	21:15	21:58	22:03	21:22	20:15	19:04	10	08:24 (1)	16:59	16:25
8	08:48	08:10	07:11	07:35 (1)	06:59	05:55	05:17	05:24	06:08	06:59	07:50	08:16 (1)	07:47	08:36
	16:42	17:36	18:29	13	07:48 (1)	20:24	21:16	21:59	22:02	21:20	20:13	19:01	8	08:24 (1)	16:57	16:24
9	08:48	08:09	07:09	07:33 (1)	06:56	05:53	05:16	05:25	06:09	07:01	07:52	08:18 (1)	07:49	08:37
	16:44	17:38	18:31	14	07:47 (1)	20:26	21:18	22:00	22:02	21:18	20:10	18:59	6	08:24 (1)	16:56	16:24
10	08:47	08:07	07:07	07:31 (1)	06:54	05:52	05:16	05:26	06:11	07:03	07:54	08:20 (1)	07:50	08:38
	16:45	17:40	18:33	14	07:45 (1)	20:28	21:20	22:01	22:01	21:16	20:08	18:57	3	08:23 (1)	16:54	16:24
11	08:47	08:05	08:30 (2)	07:05	07:32 (1)	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	3	08:33 (2)	18:34	11	07:43 (1)	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
12	08:46	08:03	08:28 (2)	07:02	07:36 (1)	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	6	08:34 (2)	18:36	4	07:40 (1)	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	08:26 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	8	08:34 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:45	07:59	08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	11	08:35 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	13	08:35 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	08:20 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	16	08:36 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	08:18 (2)	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:54 (2)	08:03	08:45
	16:56	17:53	18	08:36 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	2	08:56 (2)	16:43	16:24
18	08:41	07:51	08:16 (2)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:49 (2)	08:05	08:46
	16:58	17:55	20	08:36 (2)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	12	09:01 (2)	16:42	16:24
19	08:40	07:49	08:14 (2)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:47 (2)	08:07	08:46
	16:59	17:57	21	08:35 (2)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16	09:03 (2)	16:41	16:24
20	08:39	07:47	08:12 (2)	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:45 (2)	08:08	08:47
	17:01	17:59	22	08:34 (2)	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	19	09:04 (2)	16:39	16:25
21	08:38	07:45	08:13 (2)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:43 (2)	08:10	08:48
	17:03	18:01	20	08:33 (2)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	21	09:04 (2)	16:38	16:25
22	08:36	07:43	08:15 (2)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:43 (2)	08:12	08:48
	17:04	18:03	17	08:32 (2)	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	22	09:05 (2)	16:37	16:26
23	08:35	07:40	08:16 (2)	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:44 (2)	08:14	08:49
	17:06	18:05	15	08:31 (2)	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	21	09:05 (2)	16:36	16:26
24	08:34	07:38	08:19 (2)	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:46 (2)	08:15	08:49
	17:08	18:07	9	08:28 (2)	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	19	09:05 (2)	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (2)	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	17	08:05 (2)	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (2)	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	15	08:05 (2)	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	13	08:05 (2)	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	10	08:04 (2)	16:31	16:30
29	08:27	07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23	08:50
	17:17	20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	8	08:04 (2)	16:30	16:30
30	08:25	07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25	08:50
	17:19	20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	5	08:03 (2)	16:29	16:31
31	08:24	07:17	05:23	05:55	06:46	07:32	08:00 (2)	08:50
	17:21	20:10	21:50	21:34	20:31	17:12	2	08:02 (2)	16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case	199	88
Sun reduction	0.21	0.24
Oper. time red.	1.00	1.00
Wind dir. red.	0.67	0.67
Total reduction	0.14	0.16
Total, real	28	14	46

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CP - H94

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CQ - H95

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:50	08:22		07:27	08:01 (2)	07:15	06:09	05:22	05:18	05:56	06:48		07:38	08:04 (1)	07:34	08:26
	16:34	17:23		18:16	14 08:15 (2)	20:12	21:04	21:52	22:06	21:33	20:29		19:18	12 08:16 (1)	17:10	16:28
2	08:50	08:21		07:25	08:04 (2)	07:13	06:07	05:21	05:19	05:58	06:49		07:40	08:06 (1)	07:36	08:28
	16:35	17:25		18:18	9 08:13 (2)	20:13	21:06	21:53	22:06	21:31	20:27		19:15	10 08:16 (1)	17:08	16:28
3	08:50	08:19		07:23		07:10	06:05	05:20	05:20	05:59	06:51		07:42	08:07 (1)	07:38	08:29
	16:36	17:27		18:20		20:15	21:08	21:54	22:05	21:29	20:24		19:13	8 08:15 (1)	17:06	16:27
4	08:50	08:17		07:21		07:08	06:03	05:19	05:21	06:01	06:53		07:44	08:09 (1)	07:39	08:31
	16:37	17:29		18:22		20:17	21:09	21:55	22:05	21:27	20:22		19:11	6 08:15 (1)	17:04	16:26
5	08:50	08:16		07:18		07:06	06:01	05:19	05:22	06:03	06:54		07:45	08:11 (1)	07:41	08:32
	16:38	17:30		18:23		20:19	21:11	21:56	22:04	21:26	20:20		19:08	3 08:14 (1)	17:03	16:26
6	08:49	08:14		07:16		07:03	05:59	05:18	05:22	06:04	06:56		07:47		07:43	08:33
	16:40	17:32		18:25		20:21	21:13	21:57	22:04	21:24	20:17		19:06		17:01	16:25
7	08:49	08:12		07:14		07:01	05:57	05:17	05:23	06:06	06:58		07:49		07:45	08:35
	16:41	17:34		18:27		20:22	21:15	21:58	22:03	21:22	20:15		19:04		16:59	16:25
8	08:48	08:10		07:11	07:35 (1)	06:59	05:55	05:17	05:24	06:08	06:59		07:50		07:47	08:36
	16:42	17:36		18:29	2 07:37 (1)	20:24	21:16	21:59	22:02	21:20	20:13		19:01		16:57	16:24
9	08:48	08:09		07:09	07:33 (1)	06:56	05:53	05:16	05:25	06:09	07:01		07:52		07:49	08:37
	16:44	17:38		18:31	4 07:37 (1)	20:26	21:18	22:00	22:02	21:18	20:10		18:59		16:56	16:24
10	08:47	08:07		07:07	07:30 (1)	06:54	05:52	05:16	05:26	06:11	07:03		07:54		07:50	08:38
	16:45	17:40		18:33	7 07:37 (1)	20:28	21:20	22:01	22:01	21:16	20:08		18:57		16:54	16:24
11	08:47	08:05		07:05	07:28 (1)	06:52	05:50	05:15	05:27	06:12	07:05		07:56	08:41 (2)	07:52	08:39
	16:46	17:42		18:34	9 07:37 (1)	20:29	21:21	22:01	22:00	21:14	20:06		18:55	3 08:44 (2)	16:52	16:24
12	08:46	08:03		07:02	07:26 (1)	06:49	05:48	05:15	05:28	06:14	07:06		07:57	08:37 (2)	07:54	08:40
	16:48	17:44		18:36	11 07:37 (1)	20:31	21:23	22:02	21:59	21:12	20:03		18:52	11 08:48 (2)	16:51	16:24
13	08:45	08:01		07:00	07:23 (1)	06:47	05:47	05:15	05:30	06:16	07:08		07:59	08:33 (2)	07:56	08:41
	16:49	17:46		18:38	12 07:35 (1)	20:33	21:25	22:03	21:58	21:10	20:01		18:50	16 08:49 (2)	16:49	16:24
14	08:45	07:59		06:58	07:21 (1)	06:45	05:45	05:14	05:31	06:17	07:10		08:01	08:32 (2)	07:58	08:42
	16:51	17:48		18:40	14 07:35 (1)	20:35	21:26	22:03	21:57	21:08	19:58		18:48	19 08:51 (2)	16:48	16:24
15	08:44	07:57		06:55	07:20 (1)	06:43	05:43	05:14	05:32	06:19	07:11		08:03	08:31 (2)	08:00	08:43
	16:53	17:50		18:42	12 07:32 (1)	20:36	21:28	22:04	21:56	21:06	19:56		18:46	20 08:51 (2)	16:46	16:24
16	08:43	07:55		06:53	07:22 (1)	06:40	05:42	05:14	05:33	06:21	07:13		08:05	08:31 (2)	08:01	08:44
	16:54	17:52		18:43	8 07:30 (1)	20:38	21:29	22:04	21:55	21:04	19:54		18:43	21 08:52 (2)	16:45	16:24
17	08:42	07:53		06:50		06:38	05:40	05:14	05:35	06:22	07:15		08:06	08:33 (2)	08:03	08:45
	16:56	17:53		18:45		20:40	21:31	22:05	21:54	21:02	19:51		18:41	19 08:52 (2)	16:43	16:24
18	08:41	07:51	08:16 (2)	06:48		06:36	05:39	05:14	05:36	06:24	07:16		08:08	08:35 (2)	08:05	08:46
	16:58	17:55	3 08:19 (2)	18:47		20:42	21:32	22:05	21:53	21:00	19:49		18:39	18 08:53 (2)	16:42	16:24
19	08:40	07:49	08:14 (2)	06:46		06:34	05:37	05:14	05:37	06:26	07:18		08:10	08:37 (2)	08:07	08:46
	16:59	17:57	6 08:20 (2)	18:49		20:43	21:34	22:06	21:52	20:58	19:46		18:37	16 08:53 (2)	16:41	16:24
20	08:39	07:47	08:11 (2)	06:43		06:32	05:36	05:14	05:38	06:28	07:20		08:12	08:39 (2)	08:08	08:47
	17:01	17:59	9 08:20 (2)	18:50		20:45	21:35	22:06	21:51	20:56	19:44		18:35	13 08:52 (2)	16:39	16:25
21	08:38	07:45	08:09 (2)	06:41		06:29	05:34	05:14	05:40	06:29	07:21		08:14	08:40 (2)	08:10	08:48
	17:03	18:01	12 08:21 (2)	18:52		20:47	21:37	22:06	21:49	20:54	19:42		18:32	11 08:51 (2)	16:38	16:25
22	08:36	07:43	08:07 (2)	06:39		06:27	05:33	05:14	05:41	06:31	07:23		08:15	08:42 (2)	08:12	08:48
	17:04	18:03	14 08:21 (2)	18:54		20:49	21:38	22:06	21:48	20:51	19:39		18:30	8 08:50 (2)	16:37	16:26
23	08:35	07:40	08:05 (2)	06:36		06:25	05:32	05:15	05:43	06:33	07:25		08:17	08:44 (2)	08:14	08:49
	17:06	18:05	16 08:21 (2)	18:56		20:50	21:40	22:07	21:47	20:49	19:37		18:28	5 08:49 (2)	16:36	16:26
24	08:34	07:38	08:03 (2)	06:34		06:23	05:30	05:15	05:44	06:34	07:26		08:19	08:46 (2)	08:15	08:49
	17:08	18:07	18 08:21 (2)	18:58		20:52	21:41	22:07	21:45	20:47	19:34		18:26	2 08:48 (2)	16:35	16:27
25	08:33	07:36	08:00 (2)	06:32		06:21	05:29	05:15	05:46	06:36	07:28		07:21		08:17	08:49
	17:10	18:09	20 08:20 (2)	18:59		20:54	21:43	22:07	21:44	20:45	19:32		17:24		16:34	16:27
26	08:31	07:34	07:58 (2)	06:29		06:19	05:28	05:16	05:47	06:38	07:30		07:23		08:19	08:50
	17:12	18:10	22 08:20 (2)	19:01		20:56	21:44	22:07	21:42	20:43	19:30		17:22		16:33	16:28
27	08:30	07:32	07:59 (2)	06:27		06:17	05:27	05:16	05:49	06:39	07:31	08:05 (1)	07:25		08:20	08:50
	17:13	18:12	20 08:19 (2)	19:03		20:57	21:45	22:07	21:41	20:40	19:27	5 08:10 (1)	17:20		16:32	16:29
28	08:28	07:30	08:00 (2)	06:24		06:15	05:26	05:17	05:50	06:41	07:33	08:02 (1)	07:26		08:22	08:50
	17:15	18:14	18 08:18 (2)	19:05		20:59	21:47	22:07	21:39	20:38	19:25	11 08:13 (1)	17:18		16:31	16:30
29	08:27			07:22		06:13	05:25	05:17	05:52	06:43	07:35	08:00 (1)	07:28		08:23	08:50
	17:17			20:06		21:01	21:48	22:06	21:38	20:36	19:23	14 08:14 (1)	17:16		16:30	16:30
30	08:25			07:20		06:11	05:24	05:18	05:53	06:44	07:37	08:02 (1)	07:30		08:25	08:50
	17:19			20:08		21:03	21:49	22:06	21:36	20:34	19:20	13 08:15 (1)	17:14		16:29	16:31
31	08:24			07:17			05:23		05:55	06:46			07:32			08:50
	17:21			20:10			21:50		21:34	20:31			17:12			16:32
Potential sun hours	256	276		367		418	489	503	506	456	381		330		263	240
Total, worst case		158		102							43		221			
Sun reduction		0.21		0.24							0.28		0.24			
Oper. time red.		1.00		1.00							1.00		1.00			
Wind dir. red.		0.68		0.67							0.67		0.67			
Total reduction		0.14		0.16							0.19		0.16			
Total, real		22		17							8		36			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CR - H96

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CS - H97

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CT - H98

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	19:29 (3)	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	16 19:45 (3)	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	19:31 (3)	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	13 19:44 (3)	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	19:34 (3)	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	6 19:40 (3)	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08		06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17		21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05		06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19		21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03		05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20		21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01		05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22		21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58		05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24		21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56		05:53	05:16	05:25	06:09	07:01 19:28 (3)	07:52	07:48	08:37
	16:43	17:38	18:31	20:26		21:18	22:00	22:01	21:18	20:10 5 19:33 (3)	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54		05:52	05:16	05:26	06:11	07:03 19:25 (3)	07:54	07:50	08:38
	16:45	17:40	18:32	20:27		21:19	22:00	22:01	21:16	20:08 12 19:37 (3)	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52		05:50	05:15	05:27	06:12	07:04 19:22 (3)	07:56	07:52	08:39
	16:46	17:42	18:34	20:29		21:21	22:01	22:00	21:14	20:05 16 19:38 (3)	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49		05:48	05:15	05:28	06:14	07:06 19:21 (3)	07:57	07:54	08:40
	16:48	17:44	18:36	20:31		21:23	22:02	21:59	21:12	20:03 15 19:36 (3)	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47		05:46	05:15	05:29	06:16	07:08 19:19 (3)	07:59	07:56	08:41
	16:49	17:46	18:38	20:33		21:24	22:02	21:58	21:10	20:01 14 19:33 (3)	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45		05:45	05:14	05:31	06:17	07:09 19:18 (3)	08:01	07:58	08:42
	16:51	17:48	18:40	20:34		21:26	22:03	21:57	21:08	19:58 13 19:31 (3)	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42		05:43	05:14	05:32	06:19	07:11 19:18 (3)	08:03	07:59	08:43
	16:52	17:49	18:41	20:36		21:28	22:04	21:56	21:06	19:56 11 19:29 (3)	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	20:10 (1)	05:42	05:14	05:33	06:21	07:13 19:16 (3)	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	1 20:11 (1)	21:29	22:04	21:55	21:04	19:53 10 19:26 (3)	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	20:09 (1)	05:40	05:14	05:34	06:22 20:23 (1)	07:14 19:16 (3)	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	4 20:13 (1)	21:31	22:05	21:54	21:02 3 20:26 (1)	19:51 8 19:24 (3)	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	20:09 (1)	05:39	05:14	05:36	06:24 20:19 (1)	07:16 19:17 (3)	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	5 20:14 (1)	21:32	22:05	21:53	21:00 11 20:30 (1)	19:49 5 19:22 (3)	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	20:08 (1)	05:37	05:14	05:37	06:26 20:16 (1)	07:18 19:16 (3)	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	7 20:15 (1)	21:34	22:05	21:52	20:58 13 20:29 (1)	19:46 3 19:19 (3)	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	20:08 (1)	05:36	05:14	05:38	06:27 20:15 (1)	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	9 20:17 (1)	21:35	22:06	21:50	20:56 12 20:27 (1)	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	20:08 (1)	05:34	05:14	05:40	06:29 20:14 (1)	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	11 20:19 (1)	21:37	22:06	21:49	20:53 11 20:25 (1)	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	20:09 (1)	05:33	05:14	05:41	06:31 20:13 (1)	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	11 20:20 (1)	21:38	22:06	21:48	20:51 10 20:23 (1)	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	20:10 (1)	05:32	05:15	05:42	06:32 20:13 (1)	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	12 20:22 (1)	21:40	22:06	21:46	20:49 8 20:21 (1)	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	18:30 (3) 06:23	20:11 (1)	05:30	05:15	05:44	06:34 20:12 (1)	07:26	08:19	08:15	08:49
	17:08	18:07	18:57 2	18:32 (3) 20:52	13 20:24 (1)	21:41	22:07	21:45	20:47 7 20:19 (1)	19:34	18:26	16:34	16:27
25	08:32	07:36	06:31	18:28 (3) 06:21	20:13 (1)	05:29	05:15	05:45	06:36 20:12 (1)	07:28	07:21	08:17	08:49
	17:10	18:08	18:59 5	18:33 (3) 20:54	9 20:22 (1)	21:42	22:07	21:44	20:45 5 20:17 (1)	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	18:28 (3) 06:19		05:28	05:16	05:47	06:37 20:11 (1)	07:30	07:23	08:18	08:50
	17:11	18:10	19:01 7	18:35 (3) 20:55		21:44	22:07	21:42	20:42 3 20:14 (1)	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	18:28 (3) 06:17		05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03 9	18:37 (3) 20:57		21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	18:27 (3) 06:14		05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04 11	18:38 (3) 20:59		21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	19:28 (3) 06:12		05:25	05:17	05:51	06:42	07:35	07:28	08:23	08:50
	17:17		20:06 12	19:40 (3) 21:01		21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	19:28 (3) 06:10		05:23	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08 14	19:42 (3) 21:02		21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17	19:28 (3)		05:23		05:55	06:46		07:32		08:50
	17:21		20:10 15	19:43 (3)		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418		488	503	506	456	381	330	263	240
Total, worst case			75	117					83	112			
Sun reduction			0.24	0.35					0.30	0.28			
Oper. time red.			1.00	1.00					1.00	1.00			
Wind dir. red.			0.68	0.68					0.67	0.68			
Total reduction			0.17	0.24					0.20	0.19			
Total, real			12	28					17	22			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CU - H99

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:50	08:22		07:27		07:52 (2)	07:15	06:09	05:22	05:18	05:56	06:48		07:38		08:04 (1)	07:34	08:26
	16:34	17:23		18:16	20	08:12 (2)	20:12	21:04	21:52	22:06	21:33	20:29		19:18	8	08:12 (1)	17:10	16:28
2	08:50	08:21		07:25		07:53 (2)	07:13	06:07	05:21	05:19	05:58	06:49		07:40		08:06 (1)	07:36	08:28
	16:35	17:25		18:18	18	08:11 (2)	20:13	21:06	21:53	22:06	21:31	20:27		19:15	6	08:12 (1)	17:08	16:28
3	08:50	08:19		07:23		07:55 (2)	07:10	06:05	05:20	05:20	05:59	06:51		07:42		08:07 (1)	07:38	08:29
	16:36	17:27		18:20	15	08:10 (2)	20:15	21:08	21:54	22:05	21:29	20:24		19:13	3	08:10 (1)	17:06	16:27
4	08:50	08:17		07:21		07:56 (2)	07:08	06:03	05:19	05:21	06:01	06:53		07:44			07:39	08:31
	16:37	17:29		18:22	11	08:07 (2)	20:17	21:09	21:55	22:05	21:27	20:22		19:11			17:04	16:26
5	08:50	08:16		07:18			07:06	06:01	05:19	05:22	06:03	06:54		07:45			07:41	08:32
	16:38	17:30		18:23			20:19	21:11	21:56	22:04	21:26	20:20		19:08			17:03	16:26
6	08:49	08:14		07:16			07:03	05:59	05:18	05:22	06:04	06:56		07:47			07:43	08:33
	16:40	17:32		18:25			20:21	21:13	21:57	22:04	21:24	20:17		19:06			17:01	16:25
7	08:49	08:12		07:14			07:01	05:57	05:17	05:23	06:06	06:58		07:49			07:45	08:35
	16:41	17:34		18:27			20:22	21:15	21:58	22:03	21:22	20:15		19:04			16:59	16:25
8	08:48	08:10		07:11			06:59	05:55	05:17	05:24	06:08	06:59		07:50			07:47	08:36
	16:42	17:36		18:29			20:24	21:16	21:59	22:02	21:20	20:13		19:01			16:57	16:24
9	08:48	08:09		07:09			06:56	05:53	05:16	05:25	06:09	07:01		07:52		08:33 (2)	07:49	08:37
	16:44	17:38		18:31			20:26	21:18	22:00	22:02	21:18	20:10		18:59	7	08:40 (2)	16:56	16:24
10	08:47	08:07		07:07		07:30 (1)	06:54	05:52	05:16	05:26	06:11	07:03		07:54		08:30 (2)	07:50	08:38
	16:45	17:40		18:33	2	07:32 (1)	20:28	21:20	22:01	22:01	21:16	20:08		18:57	13	08:43 (2)	16:54	16:24
11	08:47	08:05		07:05		07:28 (1)	06:52	05:50	05:15	05:27	06:12	07:05		07:56		08:28 (2)	07:52	08:39
	16:46	17:42		18:34	5	07:33 (1)	20:29	21:21	22:01	22:00	21:14	20:06		18:55	17	08:45 (2)	16:52	16:24
12	08:46	08:03		07:02		07:26 (1)	06:49	05:48	05:15	05:28	06:14	07:06		07:57		08:27 (2)	07:54	08:40
	16:48	17:44		18:36	7	07:33 (1)	20:31	21:23	22:02	21:59	21:12	20:03		18:52	19	08:46 (2)	16:51	16:24
13	08:45	08:01		07:00		07:23 (1)	06:47	05:47	05:15	05:30	06:16	07:08		07:59		08:25 (2)	07:56	08:41
	16:50	17:46		18:38	9	07:32 (1)	20:33	21:25	22:03	21:58	21:10	20:01		18:50	21	08:46 (2)	16:49	16:24
14	08:45	07:59		06:58		07:21 (1)	06:45	05:45	05:14	05:31	06:17	07:10		08:01		08:27 (2)	07:58	08:42
	16:51	17:48		18:40	11	07:32 (1)	20:35	21:26	22:03	21:57	21:08	19:58		18:48	19	08:46 (2)	16:48	16:24
15	08:44	07:57		06:55		07:18 (1)	06:43	05:43	05:14	05:32	06:19	07:11		08:03		08:29 (2)	08:00	08:43
	16:53	17:50		18:42	12	07:30 (1)	20:36	21:28	22:04	21:56	21:06	19:56		18:46	17	08:46 (2)	16:46	16:24
16	08:43	07:55		06:53		07:16 (1)	06:40	05:42	05:14	05:33	06:21	07:13		08:05		08:31 (2)	08:01	08:44
	16:54	17:52		18:43	13	07:29 (1)	20:38	21:29	22:04	21:55	21:04	19:54		18:43	15	08:46 (2)	16:45	16:24
17	08:42	07:53		06:50		07:17 (1)	06:38	05:40	05:14	05:35	06:22	07:15		08:06		08:33 (2)	08:03	08:45
	16:56	17:53		18:45	10	07:27 (1)	20:40	21:31	22:05	21:54	21:02	19:51		18:41	13	08:46 (2)	16:43	16:24
18	08:41	07:51		06:48			06:36	05:39	05:14	05:36	06:24	07:16		08:08		08:35 (2)	08:05	08:46
	16:58	17:55		18:47			20:42	21:32	22:05	21:53	21:00	19:49		18:39	11	08:46 (2)	16:42	16:24
19	08:40	07:49		06:46			06:34	05:37	05:14	05:37	06:26	07:18		08:10		08:37 (2)	08:07	08:46
	16:59	17:57		18:49			20:43	21:34	22:06	21:52	20:58	19:46		18:37	8	08:45 (2)	16:41	16:24
20	08:39	07:47		06:43			06:32	05:36	05:14	05:38	06:28	07:20		08:12		08:39 (2)	08:08	08:47
	17:01	17:59		18:51			20:45	21:35	22:06	21:51	20:56	19:44		18:35	5	08:44 (2)	16:39	16:25
21	08:38	07:45	08:09 (2)	06:41			06:29	05:34	05:14	05:40	06:29	07:21		08:14		08:40 (2)	08:10	08:48
	17:03	18:01	3 08:12 (2)	18:52			20:47	21:37	22:06	21:49	20:54	19:42		18:32	2	08:42 (2)	16:38	16:25
22	08:36	07:43	08:07 (2)	06:39			06:27	05:33	05:14	05:41	06:31	07:23		08:15			08:12	08:48
	17:04	18:03	6 08:13 (2)	18:54			20:49	21:38	22:06	21:48	20:51	19:39		18:30			16:37	16:26
23	08:35	07:40	08:05 (2)	06:36			06:25	05:32	05:15	05:43	06:33	07:25		08:17			08:14	08:49
	17:06	18:05	9 08:14 (2)	18:56			20:50	21:40	22:07	21:47	20:49	19:37		18:28			16:36	16:26
24	08:34	07:38	08:03 (2)	06:34			06:23	05:30	05:15	05:44	06:34	07:26		08:19			08:15	08:49
	17:08	18:07	12 08:15 (2)	18:58			20:52	21:41	22:07	21:45	20:47	19:34		18:26			16:35	16:27
25	08:33	07:36	08:00 (2)	06:32			06:21	05:29	05:15	05:46	06:36	07:28		07:21			08:17	08:49
	17:10	18:09	14 08:14 (2)	18:59			20:54	21:43	22:07	21:44	20:45	19:32		17:24			16:34	16:27
26	08:31	07:34	07:58 (2)	06:29			06:19	05:28	05:16	05:47	06:38	07:30	08:00 (1)	07:23			08:19	08:50
	17:12	18:10	16 08:14 (2)	19:01			20:56	21:44	22:07	21:42	20:43	19:30	8 08:08 (1)	17:22			16:33	16:28
27	08:30	07:32	07:56 (2)	06:27			06:17	05:27	05:16	05:49	06:39	07:31	07:58 (1)	07:25			08:20	08:50
	17:13	18:12	18 08:14 (2)	19:03			20:57	21:45	22:07	21:41	20:40	19:27	12 08:10 (1)	17:20			16:32	16:29
28	08:28	07:30	07:54 (2)	06:24			06:15	05:26	05:17	05:50	06:41	07:33	07:59 (1)	07:26			08:22	08:50
	17:15	18:14	20 08:14 (2)	19:05			20:59	21:47	22:07	21:39	20:38	19:25	13 08:12 (1)	17:18			16:31	16:30
29	08:27			07:22			06:13	05:25	05:17	05:52	06:43	07:35	08:00 (1)	07:28			08:23	08:50
	17:17			20:06			21:01	21:48	22:06	21:38	20:36	19:23	11 08:11 (1)	17:16			16:30	16:30
30	08:25			07:20			06:11	05:24	05:18	05:53	06:44	07:37	08:02 (1)	07:30			08:25	08:50
	17:19			20:08			21:03	21:49	22:06	21:36	20:34	19:20	10 08:12 (1)	17:14			16:29	16:31
31	08:24			07:17				05:23		05:55	06:46			07:32				08:50
	17:21			20:10				21:50		21:34	20:31			17:12				16:32
Potential sun hours	256	276		367		418	489	503	506	456	381		330		263	240
Total, worst case		98			133							54		184				
Sun reduction		0.21			0.24							0.28		0.24				
Oper. time red.		1.00			1.00							1.00		1.00				
Wind dir. red.		0.68			0.67							0.67		0.68				
Total reduction		0.14			0.16							0.19		0.16				
Total, real		14			22							10		30				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CV - H100

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08		05:22		21:05 (3)	05:18	21:16 (3)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:51	13	21:18 (3)	22:06	11 21:27 (3)	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06		05:21		21:05 (3)	05:19	21:16 (3)	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	14	21:19 (3)	22:05	12 21:28 (3)	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05		05:20		21:06 (3)	05:20	21:15 (3)	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08		21:54	15	21:21 (3)	22:05	13 21:28 (3)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03		05:19		21:06 (3)	05:21	21:14 (3)	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09		21:55	15	21:21 (3)	22:04	15 21:29 (3)	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01		05:18		21:06 (3)	05:21	21:14 (3)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	16	21:22 (3)	22:04	16 21:30 (3)	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18		21:08 (3)	05:22	21:14 (3)	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13		21:57	15	21:23 (3)	22:03	16 21:30 (3)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17		21:08 (3)	05:23	21:14 (3)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14		21:58	15	21:23 (3)	22:03	15 21:29 (3)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		05:17		21:09 (3)	05:24	21:14 (3)	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16		21:59	15	21:24 (3)	22:02	15 21:29 (3)	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53		05:16		21:10 (3)	05:25	21:13 (3)	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18		21:59	14	21:24 (3)	22:01	14 21:27 (3)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52		05:16		21:10 (3)	05:26	21:12 (3)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19		22:00	13	21:23 (3)	22:01	15 21:27 (3)	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50		05:15		21:11 (3)	05:27	21:12 (3)	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21		22:01	12	21:23 (3)	22:00	14 21:26 (3)	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48		05:15		21:12 (3)	05:28	21:12 (3)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23		22:02	11	21:23 (3)	21:59	13 21:25 (3)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46		05:15		21:12 (3)	05:30	21:13 (3)	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24		22:02	9	21:21 (3)	21:58	12 21:25 (3)	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45		05:14		21:13 (3)	05:31	21:12 (3)	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26		22:03	8	21:21 (3)	21:57	12 21:24 (3)	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43		05:14		21:14 (3)	05:32	21:12 (3)	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28		22:04	7	21:21 (3)	21:56	11 21:23 (3)	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42		05:14		21:15 (3)	05:33	21:12 (3)	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29		22:04	6	21:21 (3)	21:55	10 21:22 (3)	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40		05:14		21:16 (3)	05:34	21:12 (3)	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31		22:05	4	21:20 (3)	21:54	9 21:21 (3)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39		05:14		21:16 (3)	05:36	21:11 (3)	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32		22:05	4	21:20 (3)	21:53	9 21:20 (3)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37		05:14		21:17 (3)	05:37	21:12 (3)	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34		22:05	2	21:19 (3)	21:52	8 21:20 (3)	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	21:02 (3)	05:14			05:38	21:12 (3)	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	1 21:03 (3)	22:06			21:50	6 21:18 (3)	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	21:02 (3)	05:14			05:40	21:12 (3)	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	3 21:05 (3)	22:06			21:49	5 21:17 (3)	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	21:02 (3)	05:14			05:41	21:12 (3)	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	5 21:07 (3)	22:06			21:48	3 21:15 (3)	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	21:02 (3)	05:15		21:19 (3)	05:43	21:13 (3)	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	6 21:08 (3)	22:06	1	21:20 (3)	21:46	2 21:15 (3)	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	21:02 (3)	05:15		21:18 (3)	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	6 21:08 (3)	22:06	3	21:21 (3)	21:45		20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	21:02 (3)	05:15		21:18 (3)	05:45		06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	8 21:10 (3)	22:07	4	21:22 (3)	21:44		20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	21:02 (3)	05:16		21:17 (3)	05:47		06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	9 21:11 (3)	22:07	6	21:23 (3)	21:42		20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	21:02 (3)	05:16		21:17 (3)	05:48		06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	10 21:12 (3)	22:06	7	21:24 (3)	21:41		20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	21:03 (3)	05:17		21:16 (3)	05:50		06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	10 21:13 (3)	22:06	8	21:24 (3)	21:39		20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	21:04 (3)	05:17		21:17 (3)	05:51		06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	11 21:15 (3)	22:06	8	21:25 (3)	21:37		20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	21:04 (3)	05:18		21:16 (3)	05:53		06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	12 21:16 (3)	22:06	10	21:26 (3)	21:36		20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	21:04 (3)				05:55		06:46		07:32		08:50
	17:21		20:10		21:50	13 21:17 (3)				21:34		20:31		17:12		16:32
Potential sun hours	256	276	367	418	488		503			506		456	381	330	263	240
Total, worst case						94		255		256						
Sun reduction						0.37		0.30		0.26						
Oper. time red.						1.00		1.00		1.00						
Wind dir. red.						0.66		0.66		0.66						
Total reduction						0.24		0.20		0.17						
Total, real						23		50		45						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Planning Authority Inspection Purposes Only!

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CW - H101

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CX - H102

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	19:32 (3)	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	5 19:37 (3)	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12		06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13		21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10		06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15		21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08		06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17		21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05		06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19		21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03		05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20		21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01		05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22		21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58		05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24		21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56		05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26		21:18	22:00	22:01	21:18	20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54		05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27		21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52		05:50	05:15	05:27	06:12	07:04	19:25 (3)	07:56	07:52	08:39
	16:46	17:42	18:34	20:29		21:21	22:01	22:00	21:14	20:05	3 19:28 (3)	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49		05:48	05:15	05:28	06:14	07:06	19:21 (3)	07:57	07:54	08:40
	16:48	17:44	18:36	20:31		21:23	22:02	21:59	21:12	20:03	11 19:32 (3)	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47		05:46	05:15	05:29	06:16	07:08	19:18 (3)	07:59	07:56	08:41
	16:49	17:46	18:38	20:33		21:24	22:02	21:58	21:10	20:01	15 19:33 (3)	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	20:06 (1)	05:45	05:14	05:31	06:17	07:09	19:17 (3)	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	1 20:07 (1)	21:26	22:03	21:57	21:08	19:58	14 19:31 (3)	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42	20:05 (1)	05:43	05:14	05:32	06:19	07:11	19:16 (3)	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	4 20:09 (1)	21:28	22:04	21:56	21:06	19:56	13 19:29 (3)	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	20:05 (1)	05:42	05:14	05:33	06:21	07:13	19:14 (3)	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	6 20:11 (1)	21:29	22:04	21:55	21:04	19:53	12 19:26 (3)	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	20:05 (1)	05:40	05:14	05:34	06:22	07:14	19:14 (3)	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	8 20:13 (1)	21:31	22:05	21:54	21:02	19:51	10 19:24 (3)	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	20:06 (1)	05:39	05:14	05:36	06:24	07:16	19:13 (3)	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	8 20:14 (1)	21:32	22:05	21:53	21:00	19:49	9 19:22 (3)	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	20:05 (1)	05:37	05:14	05:37	06:26	07:18	19:13 (3)	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	10 20:15 (1)	21:34	22:05	21:52	20:58	19:46	6 19:19 (3)	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	20:06 (1)	05:36	05:14	05:38	06:27	20:17 (1)	07:19	19:13 (3)	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	11 20:17 (1)	21:35	22:06	21:50	20:56	6 20:23 (1)	19:44	4 19:17 (3)	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	20:07 (1)	05:34	05:14	05:40	06:29	20:13 (1)	07:21	19:13 (3)	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	12 20:19 (1)	21:37	22:06	21:49	20:53	12 20:25 (1)	19:41	1 19:14 (3)	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	20:09 (1)	05:33	05:14	05:41	06:31	20:11 (1)	07:23		08:15	08:12	08:48
	17:04	18:03	18:54	20:48	11 20:20 (1)	21:38	22:06	21:48	20:51	12 20:23 (1)	19:39		18:30	16:37	16:25
23	08:35	07:40	06:36	18:26 (3)	06:25	20:12 (1)	05:32	05:15	05:42	06:32	20:10 (1)	07:24		08:17	08:13	08:48
	17:06	18:05	18:56	4 18:30 (3)	20:50	4 20:16 (1)	21:40	22:06	21:46	20:49	11 20:21 (1)	19:37		18:28	16:36	16:26
24	08:34	07:38	06:34	18:26 (3)	06:23		05:30	05:15	05:44	06:34	20:09 (1)	07:26		08:19	08:15	08:49
	17:08	18:06	18:57	6 18:32 (3)	20:52		21:41	22:07	21:45	20:47	10 20:19 (1)	19:34		18:26	16:34	16:27
25	08:32	07:36	06:31	18:25 (3)	06:21		05:29	05:15	05:45	06:36	20:08 (1)	07:28		07:21	08:17	08:49
	17:10	18:08	18:59	8 18:33 (3)	20:54		21:42	22:07	21:44	20:45	9 20:17 (1)	19:32		17:24	16:33	16:27
26	08:31	07:34	06:29	18:25 (3)	06:19		05:28	05:16	05:47	06:37	20:07 (1)	07:30		07:23	08:18	08:50
	17:11	18:10	19:01	10 18:35 (3)	20:55		21:44	22:07	21:42	20:42	7 20:14 (1)	19:30		17:22	16:32	16:28
27	08:30	07:32	06:27	18:26 (3)	06:17		05:27	05:16	05:48	06:39	20:07 (1)	07:31		07:24	08:20	08:50
	17:13	18:12	19:03	11 18:37 (3)	20:57		21:45	22:06	21:41	20:40	5 20:12 (1)	19:27		17:20	16:31	16:29
28	08:28	07:29	06:24	18:25 (3)	06:14		05:26	05:17	05:50	06:41	20:07 (1)	07:33		07:26	08:21	08:50
	17:15	18:14	19:04	13 18:38 (3)	20:59		21:47	22:06	21:39	20:38	4 20:11 (1)	19:25		17:18	16:31	16:29
29	08:27		07:22	19:26 (3)	06:12		05:25	05:17	05:51	06:42	20:07 (1)	07:35		07:28	08:23	08:50
	17:17		20:06	14 19:40 (3)	21:01		21:48	22:06	21:37	20:36	1 20:08 (1)	19:22		17:16	16:30	16:30
30	08:25		07:20	19:27 (3)	06:10		05:23	05:18	05:53	06:44		07:36		07:30	08:25	08:50
	17:19		20:08	15 19:42 (3)	21:02		21:49	22:06	21:36	20:33		19:20		17:14	16:29	16:31
31	08:24		07:17	19:28 (3)			05:23		05:55	06:46				07:32		08:50
	17:21		20:10	12 19:40 (3)			21:50		21:34	20:31				17:12		16:32
Potential sun hours	256	276	367	418		489	503	506	456	381		330	263	240		
Total, worst case			93	80					77	98						
Sun reduction			0.24	0.35					0.30	0.28						
Oper. time red.			1.00	1.00					1.00	1.00						
Wind dir. red.			0.68	0.67					0.67	0.68						
Total reduction			0.17	0.24					0.20	0.19						
Total, real			15	19					15	19						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority. Inspection purposes Only!

Licensed user:
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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CY - H103

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February	March	April	May	June	July	August	September	October	November		December
1	08:50		08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34		08:26
	16:34		17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28
2	08:50		08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:28
	16:35		17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08		16:27
3	08:50		08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38		08:29
	16:36		17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06		16:27
4	08:50		08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:31
	16:37		17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04		16:26
5	08:50		08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41		08:32
	16:38		17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03		16:26
6	08:49		08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33
	16:40		17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01		16:25
7	08:49		08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:35
	16:41		17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59		16:25
8	08:48		08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47		08:36
	16:42		17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57		16:24
9	08:48		08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49		08:37
	16:44		17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56		16:24
10	08:47		08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		08:38
	16:45		17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54		16:24
11	08:47		08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:33 (1)	08:39
	16:46		17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	9 08:42 (1)	16:24
12	08:46		08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:31 (1)	08:40
	16:48		17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	13 08:44 (1)	16:24
13	08:45		08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:30 (1)	08:41
	16:49		17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	15 08:45 (1)	16:23
14	08:45		07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:29 (1)	08:42
	16:51		17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	17 08:46 (1)	16:23
15	08:44		07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:30 (1)	08:43
	16:53		17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	17 08:47 (1)	16:24
16	08:43		07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:32 (1)	08:44
	16:54		17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16 08:48 (1)	16:24
17	08:42	09:11 (1)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:34 (1)	08:45
	16:56	1 09:12 (1)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	15 08:49 (1)	16:24
18	08:41	09:10 (1)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:36 (1)	08:46
	16:58	3 09:13 (1)	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	13 08:49 (1)	16:24
19	08:40	09:09 (1)	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:38 (1)	08:46
	16:59	5 09:14 (1)	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	12 08:50 (1)	16:24
20	08:39	09:08 (1)	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:40 (1)	08:47
	17:01	7 09:15 (1)	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39	10 08:50 (1)	16:25
21	08:38	09:06 (1)	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:42 (1)	08:48
	17:03	8 09:14 (1)	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	8 08:50 (1)	16:25
22	08:36	09:05 (1)	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:44 (1)	08:48
	17:04	10 09:15 (1)	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	7 08:51 (1)	16:26
23	08:35	09:04 (1)	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:46 (1)	08:49
	17:06	12 09:16 (1)	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	5 08:51 (1)	16:26
24	08:34	09:02 (1)	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:47 (1)	08:49
	17:08	13 09:15 (1)	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	3 08:50 (1)	16:27
25	08:33	09:01 (1)	07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49 (1)	08:50
	17:10	15 09:16 (1)	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	1 08:50 (1)	16:27
26	08:31	08:59 (1)	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19		08:50
	17:12	16 09:15 (1)	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32		16:28
27	08:30	08:58 (1)	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20		08:50
	17:13	17 09:15 (1)	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32		16:29
28	08:28	08:57 (1)	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22		08:50
	17:15	17 09:14 (1)	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31		16:30
29	08:27	08:58 (1)		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23		08:50
	17:17	15 09:13 (1)		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30		16:30
30	08:25	09:00 (1)		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25		08:50
	17:19	13 09:13 (1)		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29		16:31
31	08:24	09:02 (1)		07:17		05:23		05:55	06:46		07:32			08:51
	17:21	9 09:11 (1)		20:10		21:50		21:34	20:31		17:12			16:32
Potential sun hours	255		276	367	418	489	503	506	456	381	330	263		240
Total, worst case		161											161	
Sun reduction		0.16											0.19	
Oper. time red.		1.00											1.00	
Wind dir. red.		0.65											0.65	
Total reduction		0.10											0.12	
Total, real		17											20	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** CZ - H104

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	19:56 (1)	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29 5	20:01 (1)	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	19:57 (1)	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26 2	19:59 (1)	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51		07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24		19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53		07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22		19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:02	06:54		07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19		19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56		07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17		19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58		07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15		19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07	06:59		07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12		19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01		07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10		18:59	16:55	16:24
10	08:47	08:06	07:07	06:54 19:58 (1)	05:52	05:16	05:26	06:11	07:03		07:54	07:50	08:38
	16:45	17:40	18:32	20:27 2 20:00 (1)	21:19	22:00	22:01	21:16	20:08		18:57	16:54	16:24
11	08:47	08:05	07:04	06:52 19:57 (1)	05:50	05:15	05:27	06:12	07:04		07:56	07:52	08:39
	16:46	17:42	18:34	20:29 5 20:02 (1)	21:21	22:01	22:00	21:14	20:05		18:54	16:52	16:24
12	08:46	08:03	07:02	06:49 19:57 (1)	05:48	05:15	05:28	06:14	07:06		07:57	07:54	08:40
	16:48	17:44	18:36	20:31 7 20:04 (1)	21:23	22:02	21:59	21:12	20:03		18:52	16:51	16:23
13	08:45	08:01	07:00	06:47 19:57 (1)	05:46	05:15	05:29	06:16	07:08		07:59	07:56	08:41
	16:49	17:46	18:38	20:33 8 20:05 (1)	21:24	22:02	21:58	21:10	20:01		18:50	16:49	16:23
14	08:44	07:59	06:57	06:45 19:57 (1)	05:45	05:14	05:31	06:17	07:09		08:01	07:58	08:42
	16:51	17:48	18:40	20:34 10 20:07 (1)	21:26	22:03	21:57	21:08	19:58		18:48	16:47	16:23
15	08:43	07:57	06:55	06:42 19:58 (1)	05:43	05:14	05:32	06:19	07:11		08:03	07:59	08:43
	16:52	17:49	18:41	20:36 11 20:09 (1)	21:28	22:04	21:56	21:06	19:56		18:45	16:46	16:23
16	08:43	07:55	06:53	06:40 19:59 (1)	05:42	05:14	05:33	06:21	07:13	19:12 (3)	08:04	08:01	08:44
	16:54	17:51	18:43	20:38 12 20:11 (1)	21:29	22:04	21:55	21:04	19:53 7	19:19 (3)	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38 20:01 (1)	05:40	05:14	05:34	06:22	07:14	19:09 (3)	08:06	08:03	08:45
	16:56	17:53	18:45	20:40 11 20:12 (1)	21:31	22:05	21:54	21:02	19:51 13	19:22 (3)	18:41	16:43	16:24
18	08:41	07:51	06:48 18:19 (3)	06:36 20:04 (1)	05:39	05:14	05:36	06:24	07:16	19:07 (3)	08:08	08:05	08:45
	16:57	17:55	18:47 2 18:21 (3)	20:41 5 20:09 (1)	21:32	22:05	21:53	21:00	19:49 15	19:22 (3)	18:39	16:42	16:24
19	08:40	07:49	06:46 18:19 (3)	06:34	05:37	05:14	05:37	06:26	07:18	19:05 (3)	08:10	08:06	08:46
	16:59	17:57	18:49 4 18:23 (3)	20:43	21:34	22:05	21:52	20:58	19:46 14	19:19 (3)	18:37	16:40	16:24
20	08:38	07:47	06:43 18:18 (3)	06:31	05:36	05:14	05:38	06:27	07:19	19:04 (3)	08:12	08:08	08:47
	17:01	17:59	18:50 6 18:24 (3)	20:45	21:35	22:06	21:50	20:56	19:44 13	19:17 (3)	18:34	16:39	16:25
21	08:37	07:45	06:41 18:18 (3)	06:29	05:34	05:14	05:40	06:29	07:21	19:04 (3)	08:13	08:10	08:47
	17:03	18:01	18:52 8 18:26 (3)	20:47	21:37	22:06	21:49	20:53	19:41 10	19:14 (3)	18:32	16:38	16:25
22	08:36	07:42	06:38 18:18 (3)	06:27	05:33	05:14	05:41	06:31	07:23	19:02 (3)	08:15	08:12	08:48
	17:04	18:03	18:54 10 18:28 (3)	20:48	21:38	22:06	21:48	20:51	19:39 9	19:11 (3)	18:30	16:37	16:25
23	08:35	07:40	06:36 18:18 (3)	06:25	05:32	05:15	05:42	06:32	07:24	19:02 (3)	08:17	08:13	08:48
	17:06	18:05	18:56 12 18:30 (3)	20:50	21:40	22:06	21:46	20:49	19:37 7	19:09 (3)	18:28	16:36	16:26
24	08:34	07:38	06:34 18:18 (3)	06:23	05:30	05:15	05:44	06:34	07:26	19:02 (3)	08:19	08:15	08:49
	17:08	18:06	18:57 14 18:32 (3)	20:52	21:41	22:07	21:45	20:47	19:34 5	19:07 (3)	18:26	16:34	16:27
25	08:32	07:36	06:31 18:19 (3)	06:21	05:29	05:15	05:45	06:36 20:06 (1)	07:28	19:02 (3)	07:21	08:17	08:49
	17:10	18:08	18:59 14 18:33 (3)	20:54	21:42	22:07	21:44	20:45 6 20:12 (1)	19:32 2	19:04 (3)	17:24	16:33	16:27
26	08:31	07:34	06:29 18:20 (3)	06:19	05:28	05:16	05:47	06:37 20:02 (1)	07:30		07:23	08:18	08:50
	17:11	18:10	19:01 14 18:34 (3)	20:55	21:44	22:07	21:42	20:42 12 20:14 (1)	19:30		17:22	16:32	16:28
27	08:30	07:32	06:27 18:23 (3)	06:17	05:27	05:16	05:48	06:39 20:01 (1)	07:31		07:24	08:20	08:50
	17:13	18:12	19:03 8 18:31 (3)	20:57	21:45	22:06	21:41	20:40 11 20:12 (1)	19:27		17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41 20:00 (1)	07:33		07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	22:06	21:39	20:38 11 20:11 (1)	19:25		17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:42 19:58 (1)	07:35		07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36 10 20:08 (1)	19:22		17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44 19:58 (1)	07:36		07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33 8 20:06 (1)	19:20		17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46 19:56 (1)			07:32		08:50
	17:21		20:10		21:50		21:34	20:31 7 20:03 (1)			17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240	
Total, worst case			92	71				65	102				
Sun reduction			0.24	0.35				0.30	0.28				
Oper. time red.			1.00	1.00				1.00	1.00				
Wind dir. red.			0.68	0.67				0.67	0.68				
Total reduction			0.17	0.24				0.20	0.19				
Total, real			15	17				13	20				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DA - H105

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April	May	June	July	August	September		October		November	December
1	08:50	08:22		07:27	07:51 (2)	07:15	06:09	05:22	05:18	05:56	06:48		07:38	08:04 (1)	07:34	08:26
	16:34	17:23		18:16	20 08:11 (2)	20:12	21:04	21:52	22:06	21:33	20:29		19:18	7 08:11 (1)	17:10	16:28
2	08:50	08:21		07:25	07:52 (2)	07:13	06:07	05:21	05:19	05:58	06:49		07:40	08:06 (1)	07:36	08:28
	16:35	17:25		18:18	18 08:10 (2)	20:13	21:06	21:53	22:06	21:31	20:27		19:15	5 08:11 (1)	17:08	16:28
3	08:50	08:19		07:23	07:54 (2)	07:10	06:05	05:20	05:20	05:59	06:51		07:42	08:07 (1)	07:38	08:29
	16:36	17:27		18:20	14 08:08 (2)	20:15	21:08	21:54	22:05	21:29	20:24		19:13	3 08:10 (1)	17:06	16:27
4	08:50	08:17		07:21	07:55 (2)	07:08	06:03	05:19	05:21	06:01	06:53		07:44		07:39	08:31
	16:37	17:29		18:22	10 08:05 (2)	20:17	21:09	21:55	22:05	21:27	20:22		19:11		17:04	16:26
5	08:50	08:16		07:18		07:06	06:01	05:19	05:22	06:03	06:54		07:45		07:41	08:32
	16:38	17:30		18:23		20:19	21:11	21:56	22:04	21:26	20:20		19:08		17:03	16:26
6	08:49	08:14		07:16		07:03	05:59	05:18	05:22	06:04	06:56		07:47		07:43	08:33
	16:40	17:32		18:25		20:21	21:13	21:57	22:04	21:24	20:17		19:06		17:01	16:25
7	08:49	08:12		07:14		07:01	05:57	05:17	05:23	06:06	06:58		07:49		07:45	08:35
	16:41	17:34		18:27		20:22	21:15	21:58	22:03	21:22	20:15		19:04		16:59	16:25
8	08:48	08:10		07:11		06:59	05:55	05:17	05:24	06:08	06:59		07:50		07:47	08:36
	16:42	17:36		18:29		20:24	21:16	21:59	22:02	21:20	20:13		19:01		16:57	16:24
9	08:48	08:09		07:09		06:56	05:53	05:16	05:25	06:09	07:01		07:52	08:32 (2)	07:49	08:37
	16:44	17:38		18:31		20:26	21:18	22:00	22:02	21:18	20:10		18:59	7 08:39 (2)	16:56	16:24
10	08:47	08:07		07:07	07:30 (1)	06:54	05:52	05:16	05:26	06:11	07:03		07:54	08:29 (2)	07:50	08:38
	16:45	17:40		18:33	2 07:32 (1)	20:28	21:20	22:01	22:01	21:16	20:08		18:57	13 08:42 (2)	16:54	16:24
11	08:47	08:05		07:05	07:28 (1)	06:52	05:50	05:15	05:27	06:13	07:05		07:56	08:27 (2)	07:52	08:39
	16:46	17:42		18:34	4 07:32 (1)	20:29	21:21	22:01	22:00	21:14	20:06		18:55	16 08:43 (2)	16:52	16:24
12	08:46	08:03		07:02	07:26 (1)	06:49	05:48	05:15	05:28	06:14	07:06		07:57	08:26 (2)	07:54	08:40
	16:48	17:44		18:36	7 07:33 (1)	20:31	21:23	22:02	21:59	21:12	20:03		18:52	18 08:44 (2)	16:51	16:24
13	08:45	08:01		07:00	07:23 (1)	06:47	05:47	05:15	05:30	06:16	07:08		07:59	08:25 (2)	07:56	08:41
	16:50	17:46		18:38	9 07:32 (1)	20:33	21:25	22:03	21:58	21:10	20:01		18:50	19 08:44 (2)	16:49	16:24
14	08:45	07:59		06:58	07:21 (1)	06:45	05:45	05:14	05:31	06:17	07:10		08:01	08:27 (2)	07:58	08:42
	16:51	17:48		18:40	10 07:31 (1)	20:35	21:26	22:03	21:57	21:08	19:58		18:48	17 08:44 (2)	16:48	16:24
15	08:44	07:57		06:55	07:18 (1)	06:43	05:43	05:14	05:32	06:19	07:11		08:03	08:29 (2)	08:00	08:43
	16:53	17:50		18:42	12 07:30 (1)	20:36	21:28	22:04	21:56	21:06	19:56		18:46	16 08:45 (2)	16:46	16:24
16	08:43	07:55		06:53	07:16 (1)	06:40	05:42	05:14	05:33	06:21	07:13		08:05	08:31 (2)	08:01	08:44
	16:54	17:52		18:43	12 07:28 (1)	20:38	21:29	22:04	21:55	21:04	19:54		18:43	14 08:45 (2)	16:45	16:24
17	08:42	07:53		06:50	07:18 (1)	06:38	05:40	05:14	05:35	06:22	07:15		08:06	08:33 (2)	08:03	08:45
	16:56	17:53		18:45	8 07:26 (1)	20:40	21:31	22:05	21:54	21:02	19:51		18:41	11 08:44 (2)	16:43	16:24
18	08:41	07:51		06:48		06:36	05:39	05:14	05:36	06:24	07:16		08:08	08:35 (2)	08:05	08:46
	16:58	17:55		18:47		20:42	21:32	22:05	21:53	21:00	19:49		18:39	9 08:44 (2)	16:42	16:24
19	08:40	07:49		06:46		06:34	05:37	05:14	05:37	06:26	07:18		08:10	08:37 (2)	08:07	08:46
	16:59	17:57		18:49		20:43	21:34	22:06	21:52	20:58	19:46		18:37	6 08:43 (2)	16:41	16:24
20	08:39	07:47		06:43		06:32	05:36	05:14	05:38	06:28	07:20		08:12	08:39 (2)	08:08	08:47
	17:01	17:59		18:51		20:45	21:35	22:06	21:51	20:56	19:44		18:35	3 08:42 (2)	16:39	16:25
21	08:38	07:45	08:09 (2)	06:41		06:29	05:34	05:14	05:40	06:29	07:21		08:14		08:10	08:48
	17:03	18:01	1 08:10 (2)	18:52		20:47	21:37	22:06	21:49	20:54	19:42		18:32		16:38	16:25
22	08:36	07:43	08:07 (2)	06:39		06:27	05:33	05:14	05:41	06:31	07:23		08:15		08:12	08:48
	17:04	18:03	4 08:11 (2)	18:54		20:49	21:38	22:06	21:48	20:51	19:39		18:30		16:37	16:26
23	08:35	07:40	08:05 (2)	06:36		06:25	05:32	05:15	05:43	06:33	07:25		08:17		08:14	08:49
	17:06	18:05	7 08:12 (2)	18:56		20:50	21:40	22:07	21:47	20:49	19:37		18:28		16:36	16:26
24	08:34	07:38	08:03 (2)	06:34		06:23	05:30	05:15	05:44	06:34	07:26		08:19		08:15	08:49
	17:08	18:07	10 08:13 (2)	18:58		20:52	21:41	22:07	21:45	20:47	19:34		18:26		16:35	16:27
25	08:33	07:36	08:00 (2)	06:32		06:21	05:29	05:15	05:46	06:36	07:28		07:21		08:17	08:49
	17:10	18:09	12 08:12 (2)	18:59		20:54	21:43	22:07	21:44	20:45	19:32		17:24		16:34	16:27
26	08:31	07:34	07:58 (2)	06:29		06:19	05:28	05:16	05:47	06:38	07:30	08:01 (1)	07:23		08:19	08:50
	17:12	18:10	14 08:12 (2)	19:01		20:56	21:44	22:07	21:42	20:43	19:30	6 08:07 (1)	17:22		16:33	16:28
27	08:30	07:32	07:56 (2)	06:27		06:17	05:27	05:16	05:49	06:39	07:31	07:58 (1)	07:25		08:20	08:50
	17:13	18:12	16 08:12 (2)	19:03		20:57	21:45	22:07	21:41	20:40	19:27	12 08:10 (1)	17:20		16:32	16:29
28	08:28	07:30	07:54 (2)	06:24		06:15	05:26	05:17	05:50	06:41	07:33	07:59 (1)	07:26		08:22	08:50
	17:15	18:14	18 08:12 (2)	19:05		20:59	21:47	22:07	21:39	20:38	19:25	12 08:11 (1)	17:18		16:31	16:30
29	08:27			07:22		06:13	05:25	05:17	05:52	06:43	07:35	08:00 (1)	07:28		08:23	08:50
	17:17			20:06		21:01	21:48	22:06	21:38	20:36	19:23	11 08:11 (1)	17:16		16:30	16:30
30	08:25			07:20		06:11	05:24	05:18	05:53	06:44	07:37	08:02 (1)	07:30		08:25	08:50
	17:19			20:08		21:03	21:49	22:06	21:36	20:34	19:20	9 08:11 (1)	17:14		16:29	16:31
31	08:24			07:17			05:23		05:55	06:46			07:32			08:51
	17:21			20:10			21:50		21:34	20:31			17:12			16:32
Potential sun hours	256	276		367		418	489	503	506	456	381		330		263	240
Total, worst case		82			126							50		164		
Sun reduction		0.21			0.24							0.28		0.24		
Oper. time red.		1.00			1.00							1.00		1.00		
Wind dir. red.		0.68			0.67							0.67		0.68		
Total reduction		0.14			0.16							0.19		0.16		
Total, real		11			21							10		26		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DB - H106

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DC - H107

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DD - H108

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May		June	July		August		September	October	November	December
1	08:50	08:22	07:27	07:15	06:09		05:22	05:19		05:56	06:26 (3)	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04		21:52	22:06		21:33 9	06:35 (3)	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07		05:21	05:19		05:58	06:27 (3)	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06		21:53	22:05		21:31 8	06:35 (3)	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05		05:20	05:20		05:59	06:29 (3)	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08		21:54	22:05		21:29 6	06:35 (3)	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03		05:19	05:21		06:01	06:30 (3)	06:53	07:43	07:39	08:31
	16:37	17:29	18:22	20:17	21:09		21:55	22:05		21:27 5	06:35 (3)	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01		05:19	05:22		06:03	06:32 (3)	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11		21:56	22:04		21:26 3	06:35 (3)	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59		05:18	05:22		06:04	06:33 (3)	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13		21:57	22:04		21:24 1	06:34 (3)	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	06:23 (3)	05:17	05:23		06:06		06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15 2	06:25 (3)	21:58	22:03		21:22		20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	06:21 (3)	05:17	05:24		06:08		06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16 4	06:25 (3)	21:59	22:02		21:20		20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:54	06:19 (3)	05:16	05:25		06:09		07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18 5	06:24 (3)	22:00	22:02		21:18		20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	06:18 (3)	05:16	05:26		06:11		07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20 7	06:25 (3)	22:00	22:01		21:16		20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	06:16 (3)	05:15	05:27		06:13		07:05	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21 9	06:25 (3)	22:01	22:00		21:14		20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	06:15 (3)	05:15	05:29		06:14		07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23 10	06:25 (3)	22:02	21:59		21:12		20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	06:13 (3)	05:15	05:30		06:16		07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24 11	06:24 (3)	22:03	21:58		21:10		20:01	18:50	16:49	16:24
14	08:44	07:59	06:58	06:45	05:45	06:12 (3)	05:15	05:31		06:18		07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26 12	06:24 (3)	22:03	21:57		21:08		19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	06:10 (3)	05:14	05:32		06:19		07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28 13	06:23 (3)	22:04	21:56		21:06		19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	06:09 (3)	05:14	05:33		06:21		07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29 14	06:23 (3)	22:04	21:55		21:04		19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	06:09 (3)	05:14	05:35		06:23		07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31 12	06:21 (3)	22:05	21:54		21:02		19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	06:11 (3)	05:14	05:36		06:24		07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32 9	06:20 (3)	22:05	21:53		21:00		19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	06:13 (3)	05:14	05:37		06:26		07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34 5	06:18 (3)	22:06	21:52		20:58		19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36		05:14	05:39		06:28		07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35		22:06	21:50		20:56		19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34		05:14	05:40		06:29		07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37		22:06	21:49		20:54		19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33		05:15	05:41		06:31		07:23	08:15	08:12	08:48
	17:05	18:03	18:54	20:49	21:38		22:06	21:48		20:51		19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32		05:15	05:43		06:33		07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40		22:07	21:47		20:49		19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30		05:15	05:44		06:34		07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41		22:07	21:45		20:47		19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29		05:15	05:46	06:22 (3)	06:36		07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43		22:07	21:44 8	06:30 (3)	20:45		19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28		05:16	05:47	06:20 (3)	06:38		07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44		22:07	21:42 11	06:31 (3)	20:43		19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27		05:16	05:49	06:19 (3)	06:39		07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45		22:07	21:41 13	06:32 (3)	20:40		19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26		05:17	05:50	06:20 (3)	06:41		07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47		22:06	21:39 13	06:33 (3)	20:38		19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25		05:17	05:52	06:21 (3)	06:43		07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48		22:06	21:38 13	06:34 (3)	20:36		19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24		05:18	05:53	06:23 (3)	06:44		07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49		22:06	21:36 12	06:35 (3)	20:33		19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55	06:24 (3)	06:46			07:32		08:50
	17:21		20:10		21:50			21:34 11	06:35 (3)	20:31			17:12		16:32
Potential sun hours	256	276	367	418	488		503	506		456		381	330	263	240
Total, worst case						113			81		32				
Sun reduction						0.37			0.26		0.30				
Oper. time red.						1.00			1.00		1.00				
Wind dir. red.						0.65			0.65		0.65				
Total reduction						0.24			0.17		0.19				
Total, real						27			14		6				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DE - H109

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	20:57 (3)	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	4 21:01 (3)	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	20:58 (3)	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	2 21:00 (3)	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59		06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29		20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01		06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27		20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:03		06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25		20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04		06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24		20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06		06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22		20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07		06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20		20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09		07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	21:59	22:01	21:18		20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	20:48 (3) 05:16	05:26	06:11		07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	1 20:49 (3) 22:00	22:01	21:16		20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	20:47 (3) 05:15	05:27	06:12		07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	4 20:51 (3) 22:01	22:00	21:14		20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	20:47 (3) 05:15	05:28	06:14		07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	5 20:52 (3) 22:02	21:59	21:12		20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	20:47 (3) 05:15	05:30	06:16		07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	7 20:54 (3) 22:02	21:58	21:10		20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	20:47 (3) 05:14	05:31	06:17		07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	8 20:55 (3) 22:03	21:57	21:08		19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	20:48 (3) 05:14	05:32	06:19		07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	9 20:57 (3) 22:04	21:56	21:06		19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	20:48 (3) 05:14	05:33	06:21		07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	10 20:58 (3) 22:04	21:55	21:04		19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	20:48 (3) 05:14	05:34	06:22		07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	11 20:59 (3) 22:05	21:54	21:02		19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	20:49 (3) 05:14	05:36	06:24		07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	12 21:01 (3) 22:05	21:53	21:00		19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	20:49 (3) 05:14	05:37	21:08 (3) 06:26		07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	13 21:02 (3) 22:05	21:52	3 21:11 (3) 20:58		19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	20:50 (3) 05:14	05:38	21:05 (3) 06:27		07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	13 21:03 (3) 22:06	21:50	8 21:13 (3) 20:56		19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	20:51 (3) 05:14	05:40	21:03 (3) 06:29		07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	14 21:05 (3) 22:06	21:49	12 21:15 (3) 20:53		19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	20:53 (3) 05:14	05:41	21:02 (3) 06:31		07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	13 21:06 (3) 22:06	21:48	13 21:15 (3) 20:51		19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	20:54 (3) 05:15	05:43	21:01 (3) 06:32		07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	11 21:05 (3) 22:06	21:46	14 21:15 (3) 20:49		19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	20:55 (3) 05:15	21:31 (1) 05:44	21:00 (3) 06:34		07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	7 21:02 (3) 22:06	1 21:32 (1) 21:45	13 21:13 (3) 20:47		19:34	18:26	16:34	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	20:59 (3) 06:36		07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	13 21:12 (3) 20:45		19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	20:59 (3) 06:37		07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	12 21:11 (3) 20:42		19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	20:58 (3) 06:39		07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	11 21:09 (3) 20:40		19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	20:59 (3) 06:41		07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	9 21:08 (3) 20:38		19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	20:58 (3) 06:43		07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	8 21:06 (3) 20:36		19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	20:58 (3) 06:44		07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	7 21:05 (3) 20:33		19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	20:58 (3) 06:46			07:32		08:50
	17:21		20:10		21:50		21:34	5 21:03 (3) 20:31			17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					138	1	128	6				
Sun reduction					0.37	0.30	0.26	0.30				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.67	0.65	0.67	0.67				
Total reduction					0.25	0.19	0.18	0.20				
Total, real					34	0	23	1				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DF - H110

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DG - H111

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February	March	April	May	June	July	August	September	October	November		December
1	08:50		08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34		08:26
	16:34		17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28
2	08:50		08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:28
	16:35		17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08		16:27
3	08:50		08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38		08:29
	16:36		17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06		16:27
4	08:50		08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:31
	16:37		17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04		16:26
5	08:50		08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41		08:32
	16:38		17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03		16:26
6	08:49		08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33
	16:40		17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01		16:25
7	08:49		08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:35
	16:41		17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59		16:25
8	08:48		08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47		08:36
	16:42		17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57		16:24
9	08:48		08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49		08:37
	16:44		17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56		16:24
10	08:47		08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		08:38
	16:45		17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54		16:24
11	08:47		08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52		08:39
	16:46		17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52		16:24
12	08:46		08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54		08:40
	16:48		17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51		16:24
13	08:45		08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:39 (1)	08:41
	16:49		17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	5 08:44 (1)	16:23
14	08:45	09:15 (1)	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:37 (1)	08:42
	16:51	1 09:16 (1)	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	10 08:47 (1)	16:23
15	08:44	09:14 (1)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:35 (1)	08:43
	16:53	3 09:17 (1)	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	14 08:49 (1)	16:24
16	08:43	09:12 (1)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:35 (1)	08:44
	16:54	4 09:16 (1)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	15 08:50 (1)	16:24
17	08:42	09:11 (1)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:34 (1)	08:45
	16:56	6 09:17 (1)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	17 08:51 (1)	16:24
18	08:41	09:10 (1)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:36 (1)	08:46
	16:58	8 09:18 (1)	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16 08:52 (1)	16:24
19	08:40	09:09 (1)	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:38 (1)	08:46
	16:59	9 09:18 (1)	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	15 08:53 (1)	16:24
20	08:39	09:08 (1)	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:40 (1)	08:47
	17:01	11 09:19 (1)	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39	14 08:54 (1)	16:25
21	08:38	09:06 (1)	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:42 (1)	08:48
	17:03	12 09:18 (1)	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	12 08:54 (1)	16:25
22	08:36	09:05 (1)	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:44 (1)	08:48
	17:04	14 09:19 (1)	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	11 08:55 (1)	16:26
23	08:35	09:04 (1)	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:46 (1)	08:49
	17:06	15 09:19 (1)	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	9 08:55 (1)	16:26
24	08:34	09:02 (1)	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:47 (1)	08:49
	17:08	16 09:18 (1)	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	8 08:55 (1)	16:27
25	08:33	09:01 (1)	07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49 (1)	08:50
	17:10	17 09:18 (1)	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	6 08:55 (1)	16:27
26	08:31	09:02 (1)	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:51 (1)	08:50
	17:12	15 09:17 (1)	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	5 08:56 (1)	16:28
27	08:30	09:04 (1)	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:53 (1)	08:50
	17:13	13 09:17 (1)	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	3 08:56 (1)	16:29
28	08:28	09:05 (1)	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:54 (1)	08:50
	17:15	10 09:15 (1)	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	1 08:55 (1)	16:30
29	08:27	09:08 (1)		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23		08:50
	17:17	4 09:12 (1)		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30		16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25		08:50
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29		16:31
31	08:24			07:17		05:23		05:55	06:46		07:32			08:51
	17:21			20:10		21:50		21:34	20:31		17:12			16:32
Potential sun hours	255		276	367	418	489	503	506	456	381	330	263		240
Total, worst case		158											161	
Sun reduction		0.16											0.19	
Oper. time red.		1.00											1.00	
Wind dir. red.		0.65											0.65	
Total reduction		0.10											0.12	
Total, real		16											20	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DH - H112

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:51 (2)	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	12 08:03 (2)	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:49 (2)	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	14 08:03 (2)	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:47 (2)	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	16 08:03 (2)	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:44 (2)	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	18 08:02 (2)	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:43 (2)	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	18 08:01 (2)	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:44 (2)	07:03	05:59	05:18	05:22	06:04	06:56	07:47	08:23 (2)	07:43	08:33
	16:40	17:32	18:25	16 08:00 (2)	20:21	21:13	21:57	22:04	21:24	20:17	19:06	10 08:33 (2)	17:01	16:25
7	08:49	08:12	07:14	07:45 (2)	07:01	05:57	05:17	05:23	06:06	06:58	07:49	08:20 (2)	07:45	08:35
	16:41	17:34	18:27	12 07:57 (2)	20:22	21:15	21:58	22:03	21:22	20:15	19:04	14 08:34 (2)	16:59	16:25
8	08:48	08:10	07:11	07:48 (2)	06:59	05:55	05:17	05:24	06:08	06:59	07:50	08:18 (2)	07:47	08:36
	16:42	17:36	18:29	7 07:55 (2)	20:24	21:16	21:59	22:02	21:20	20:13	19:01	18 08:36 (2)	16:57	16:25
9	08:48	08:09	07:09		06:56	05:53	05:16	05:25	06:09	07:01	07:52	08:18 (2)	07:49	08:37
	16:44	17:38	18:31		20:26	21:18	22:00	22:02	21:18	20:10	18:59	18 08:36 (2)	16:56	16:24
10	08:47	08:07	07:07		06:54	05:52	05:16	05:26	06:11	07:03	07:54	08:20 (2)	07:50	08:38
	16:45	17:40	18:33		20:28	21:20	22:01	22:01	21:16	20:08	18:57	17 08:37 (2)	16:54	16:24
11	08:47	08:05	07:05		06:52	05:50	05:15	05:27	06:13	07:05	07:56	08:22 (2)	07:52	08:39
	16:46	17:42	18:34		20:29	21:21	22:01	22:00	21:14	20:06	18:55	15 08:37 (2)	16:52	16:24
12	08:46	08:03	07:02		06:49	05:48	05:15	05:28	06:14	07:06	07:57	08:24 (2)	07:54	08:40
	16:48	17:44	18:36		20:31	21:23	22:02	21:59	21:12	20:03	18:52	13 08:37 (2)	16:51	16:24
13	08:45	08:01	07:00		06:47	05:47	05:15	05:30	06:16	07:08	07:59	08:25 (2)	07:56	08:41
	16:50	17:46	18:38		20:33	21:25	22:03	21:58	21:10	20:01	18:50	11 08:36 (2)	16:49	16:24
14	08:45	07:59	06:58		06:45	05:45	05:14	05:31	06:17	07:10	08:01	08:27 (2)	07:58	08:42
	16:51	17:48	18:40		20:35	21:26	22:03	21:57	21:08	19:58	18:48	9 08:36 (2)	16:48	16:24
15	08:44	07:57	06:55		06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:29 (2)	08:00	08:43
	16:53	17:50	18:42		20:36	21:28	22:04	21:56	21:06	19:56	18:46	6 08:35 (2)	16:46	16:24
16	08:43	07:55	06:53		06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:31 (2)	08:01	08:44
	16:54	17:52	18:43		20:38	21:29	22:04	21:55	21:04	19:54	18:43	3 08:34 (2)	16:45	16:24
17	08:42	07:53	06:50		06:38	05:40	05:14	05:35	06:23	07:15	08:06		08:03	08:45
	16:56	17:53	18:45		20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43	16:24
18	08:41	07:51	06:48		06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05	08:46
	16:58	17:55	18:47		20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42	16:24
19	08:40	07:49	06:46		06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07	08:46
	16:59	17:57	18:49		20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41	16:24
20	08:39	07:47	06:43		06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08	08:47
	17:01	17:59	18:51		20:45	21:35	22:06	21:51	20:56	19:44	18:35		16:39	16:25
21	08:38	07:45	06:41		06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10	08:48
	17:03	18:01	18:52		20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38	16:25
22	08:36	07:43	06:39		06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12	08:48
	17:04	18:03	18:54		20:49	21:38	22:06	21:48	20:51	19:39	18:30		16:37	16:26
23	08:35	07:40	06:36		06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14	08:49
	17:06	18:05	18:56		20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36	16:26
24	08:34	07:38	06:34		06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15	08:49
	17:08	18:07	18:58		20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35	16:27
25	08:33	07:36 08:00 (2)	06:32		06:21	05:29	05:15	05:46	06:36	07:28	07:21		08:17	08:49
	17:10	18:09 1 08:01 (2)	18:59		20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:34	16:27
26	08:31	07:34 07:58 (2)	06:29		06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:19	08:50
	17:12	18:10 4 08:02 (2)	19:01		20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:33	16:28
27	08:30	07:32 07:56 (2)	06:27		06:17	05:27	05:16	05:49	06:39	07:31	07:25		08:20	08:50
	17:13	18:12 7 08:03 (2)	19:03		20:57	21:45	22:07	21:41	20:40	19:27	17:20		16:32	16:29
28	08:28	07:30 07:54 (2)	06:24		06:15	05:26	05:17	05:50	06:41	07:33	07:26		08:22	08:50
	17:15	18:14 10 08:04 (2)	19:05		20:59	21:47	22:07	21:39	20:38	19:25	17:18		16:31	16:30
29	08:27		07:22		06:13	05:25	05:17	05:52	06:43	07:35	07:28		08:23	08:50
	17:17		20:06		21:01	21:48	22:06	21:38	20:36	19:23	17:16		16:30	16:30
30	08:25		07:20		06:11	05:24	05:18	05:53	06:44	07:37	07:30		08:25	08:50
	17:19		20:08		21:03	21:49	22:06	21:36	20:34	19:20	17:14		16:29	16:31
31	08:24		07:17			05:23		05:55	06:46		07:32			08:51
	17:21		20:10			21:50		21:34	20:31		17:12			16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330		263	240
Total, worst case		22	113								134		
Sun reduction		0.21	0.24								0.24		
Oper. time red.		1.00	1.00								1.00		
Wind dir. red.		0.68	0.68								0.68		
Total reduction		0.14	0.16								0.16		
Total, real		3	19								22		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DI - H113

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DJ - H114

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DK - H115

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March		April	May	June	July	August	September	October		November	December
1	08:50	08:22		07:27	07:54 (2)	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:26
	16:34	17:23		18:16	16 08:10 (2)	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	16:28
2	08:50	08:21		07:25	07:56 (2)	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36	08:28
	16:35	17:25		18:18	13 08:09 (2)	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	16:28
3	08:50	08:19		07:23	07:58 (2)	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38	08:29
	16:36	17:27		18:20	8 08:06 (2)	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	16:27
4	08:50	08:17		07:21		07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39	08:31
	16:37	17:29		18:22		20:17	21:09	21:55	22:05	21:27	20:22	19:11		17:04	16:26
5	08:50	08:16		07:18		07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41	08:32
	16:38	17:30		18:23		20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	16:26
6	08:49	08:14		07:16		07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43	08:33
	16:40	17:32		18:25		20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01	16:25
7	08:49	08:12		07:14		07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45	08:35
	16:41	17:34		18:27		20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	16:25
8	08:48	08:10		07:11		06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47	08:36
	16:42	17:36		18:29		20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	16:25
9	08:48	08:09		07:09		06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49	08:37
	16:44	17:38		18:31		20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	16:24
10	08:47	08:07		07:07		06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50	08:38
	16:45	17:40		18:33		20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	16:24
11	08:47	08:05		07:05		06:52	05:50	05:15	05:27	06:13	07:05	07:56		07:52	08:39
	16:46	17:42		18:34		20:29	21:21	22:01	22:00	21:14	20:06	18:55	11 08:42 (2)	16:52	16:24
12	08:46	08:03		07:02		06:49	05:48	05:15	05:28	06:14	07:06	07:57	08:29 (2)	07:54	08:40
	16:48	17:44		18:36		20:31	21:23	22:02	21:59	21:12	20:03	18:52	15 08:44 (2)	16:51	16:24
13	08:45	08:01		07:00		06:47	05:47	05:15	05:30	06:16	07:08	07:59	08:27 (2)	07:56	08:41
	16:50	17:46		18:38		20:33	21:25	22:03	21:58	21:10	20:01	18:50	17 08:44 (2)	16:49	16:24
14	08:45	07:59		06:58		06:45	05:45	05:14	05:31	06:17	07:10	08:01	08:27 (2)	07:58	08:42
	16:51	17:48		18:40		20:35	21:26	22:03	21:57	21:08	19:58	18:48	18 08:45 (2)	16:48	16:24
15	08:44	07:57		06:55		06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:29 (2)	08:00	08:43
	16:53	17:50		18:42		20:36	21:28	22:04	21:56	21:06	19:56	18:46	16 08:45 (2)	16:46	16:24
16	08:43	07:55		06:53		06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:31 (2)	08:01	08:44
	16:54	17:52		18:43		20:38	21:29	22:04	21:55	21:04	19:54	18:43	14 08:45 (2)	16:45	16:24
17	08:42	07:53		06:50		06:38	05:40	05:14	05:35	06:23	07:15	08:06	08:33 (2)	08:03	08:45
	16:56	17:53		18:45		20:40	21:31	22:05	21:54	21:02	19:51	18:41	12 08:45 (2)	16:43	16:24
18	08:41	07:51		06:48		06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:35 (2)	08:05	08:46
	16:58	17:55		18:47		20:42	21:32	22:05	21:53	21:00	19:49	18:39	10 08:45 (2)	16:42	16:24
19	08:40	07:49		06:46		06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:37 (2)	08:07	08:46
	16:59	17:57		18:49		20:43	21:34	22:06	21:52	20:58	19:46	18:37	8 08:45 (2)	16:41	16:24
20	08:39	07:47		06:43		06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:39 (2)	08:08	08:47
	17:01	17:59		18:51		20:45	21:36	22:06	21:51	20:56	19:44	18:35	5 08:44 (2)	16:39	16:25
21	08:38	07:45	08:09 (2)	06:41		06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:40 (2)	08:10	08:48
	17:03	18:01	3 08:12 (2)	18:52		20:47	21:37	22:06	21:49	20:54	19:42	18:32	2 08:42 (2)	16:38	16:25
22	08:36	07:43	08:07 (2)	06:39		06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12	08:48
	17:04	18:03	6 08:13 (2)	18:54		20:49	21:38	22:06	21:48	20:51	19:39	18:30		16:37	16:26
23	08:35	07:40	08:05 (2)	06:36		06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14	08:49
	17:06	18:05	9 08:14 (2)	18:56		20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36	16:26
24	08:34	07:38	08:03 (2)	06:34		06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15	08:49
	17:08	18:07	11 08:14 (2)	18:58		20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35	16:27
25	08:33	07:36	08:00 (2)	06:32		06:21	05:29	05:15	05:46	06:36	07:28	07:21		08:17	08:50
	17:10	18:09	13 08:13 (2)	18:59		20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:34	16:27
26	08:31	07:34	07:58 (2)	06:29		06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:19	08:50
	17:12	18:10	15 08:13 (2)	19:01		20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:33	16:28
27	08:30	07:32	07:56 (2)	06:27		06:17	05:27	05:16	05:49	06:39	07:31	07:25		08:20	08:50
	17:13	18:12	17 08:13 (2)	19:03		20:57	21:45	22:07	21:41	20:40	19:27	17:20		16:32	16:29
28	08:28	07:30	07:54 (2)	06:24		06:15	05:26	05:17	05:50	06:41	07:33	07:26		08:22	08:50
	17:15	18:14	18 08:12 (2)	19:05		20:59	21:47	22:07	21:39	20:38	19:25	17:18		16:31	16:30
29	08:27			07:22		06:13	05:25	05:17	05:52	06:43	07:35	07:28		08:23	08:50
	17:17			20:06		21:01	21:48	22:06	21:38	20:36	19:23	17:16		16:30	16:30
30	08:25			07:20		06:11	05:24	05:18	05:53	06:44	07:37	07:30		08:25	08:50
	17:19			20:08		21:03	21:49	22:06	21:36	20:34	19:20	17:14		16:29	16:31
31	08:24			07:17			05:23		05:55	06:46		07:32			08:51
	17:21			20:10			21:50		21:34	20:31		17:12			16:32
Potential sun hours	256	276		367		418	489	503	506	456	381	330		263	240
Total, worst case			92		37								128		
Sun reduction			0.21		0.24								0.24		
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			0.68		0.68								0.68		
Total reduction			0.14		0.16								0.16		
Total, real			13		6								21		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DL - H116

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DM - H117

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
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28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

RECEIVED: 09/05/2025
Clare County Council Planning Authority Inspection Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DN - H118

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February	March	April	May	June	July	August	September	October	November		December	
1	08:50		08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34		08:26	08:59 (1)
	16:34		17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28	4 09:03 (1)
2	08:50		08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:28	09:01 (1)
	16:35		17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08		16:27	3 09:04 (1)
3	08:50		08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38		08:29	09:02 (1)
	16:36		17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06		16:27	2 09:04 (1)
4	08:50		08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39		08:31	
	16:37		17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04		16:26	
5	08:50		08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41		08:32	
	16:38		17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03		16:26	
6	08:49		08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43		08:33	
	16:39		17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01		16:25	
7	08:49		08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45		08:35	
	16:41		17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59		16:25	
8	08:48		08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47		08:36	
	16:42		17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57		16:24	
9	08:48	09:19 (1)	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49		08:37	
	16:44	1 09:20 (1)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56		16:24	
10	08:47	09:18 (1)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50		08:38	
	16:45	3 09:21 (1)	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54		16:24	
11	08:47	09:17 (1)	08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52		08:39	
	16:46	4 09:21 (1)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52		16:24	
12	08:46	09:16 (1)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54		08:40	
	16:48	6 09:22 (1)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51		16:24	
13	08:45	09:16 (1)	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56		08:41	
	16:49	7 09:23 (1)	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49		16:23	
14	08:45	09:15 (1)	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58		08:42	
	16:51	8 09:23 (1)	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48		16:23	
15	08:44	09:14 (1)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00		08:43	
	16:53	10 09:24 (1)	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46		16:24	
16	08:43	09:12 (1)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01		08:44	
	16:54	11 09:23 (1)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45		16:24	
17	08:42	09:11 (1)	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:47 (1)	08:45	
	16:56	12 09:23 (1)	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	5 08:52 (1)	16:24	
18	08:41	09:10 (1)	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45 (1)	08:46	
	16:58	14 09:24 (1)	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	10 08:55 (1)	16:24	
19	08:40	09:09 (1)	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:44 (1)	08:46	
	16:59	15 09:24 (1)	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	12 08:56 (1)	16:24	
20	08:39	09:08 (1)	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:43 (1)	08:47	
	17:01	16 09:24 (1)	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39	15 08:58 (1)	16:25	
21	08:38	09:06 (1)	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:42 (1)	08:48	
	17:03	17 09:23 (1)	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	17 08:59 (1)	16:25	
22	08:36	09:08 (1)	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:44 (1)	08:48	
	17:04	15 09:23 (1)	18:03	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37	16 09:00 (1)	16:26	
23	08:35	09:10 (1)	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:46 (1)	08:49	
	17:06	12 09:22 (1)	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	15 09:01 (1)	16:26	
24	08:34	09:11 (1)	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:47 (1)	08:49	
	17:08	10 09:21 (1)	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	14 09:01 (1)	16:27	
25	08:33	09:14 (1)	07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49 (1)	08:50	
	17:10	5 09:19 (1)	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	12 09:01 (1)	16:27	
26	08:31		07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:51 (1)	08:50	
	17:12		18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	11 09:02 (1)	16:28	
27	08:30		07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:53 (1)	08:50	
	17:13		18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	10 09:03 (1)	16:29	
28	08:28		07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:54 (1)	08:50	
	17:15		18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	8 09:02 (1)	16:30	
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:56 (1)	08:50	
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	7 09:03 (1)	16:30	
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:58 (1)	08:50	
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	6 09:04 (1)	16:31	
31	08:24			07:17		05:23		05:55	06:46		07:32			08:51	
	17:21			20:10		21:50		21:34	20:31		17:12			16:32	
Potential sun hours	255		276	367	418	489	503	506	456	381	330	263		240	
Total, worst case		166											158		9
Sun reduction		0.16											0.19		0.14
Oper. time red.		1.00											1.00		1.00
Wind dir. red.		0.65											0.65		0.65
Total reduction		0.10											0.12		0.09
Total, real		17											19		1

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DO - H119

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DP - H120

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DQ - H121

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
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	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DR - H122

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
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	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
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	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
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	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
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	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
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	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
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22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
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29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DS - H123

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
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19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
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	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DT - H124

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DU - H125

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January			February	March	April	May	June	July	August	September	October	November			December		
1	08:50		09:23 (1)	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34			08:26		09:00 (1)
	16:34	9	09:32 (1)	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10			16:28	16	09:16 (1)
2	08:50		09:23 (1)	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36			08:28		09:01 (1)
	16:35	10	09:33 (1)	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08			16:27	16	09:17 (1)
3	08:50		09:22 (1)	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38			08:29		09:02 (1)
	16:36	11	09:33 (1)	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06			16:27	16	09:18 (1)
4	08:50		09:22 (1)	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39			08:31		09:04 (1)
	16:37	12	09:34 (1)	17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04			16:26	15	09:19 (1)
5	08:50		09:21 (1)	08:16	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41			08:32		09:05 (1)
	16:38	12	09:33 (1)	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03			16:26	14	09:19 (1)
6	08:49		09:21 (1)	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43			08:33		09:07 (1)
	16:39	13	09:34 (1)	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01			16:25	13	09:20 (1)
7	08:49		09:20 (1)	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45			08:35		09:08 (1)
	16:41	14	09:34 (1)	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59			16:25	12	09:20 (1)
8	08:48		09:20 (1)	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47			08:36		09:09 (1)
	16:42	15	09:35 (1)	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57			16:24	12	09:21 (1)
9	08:48		09:19 (1)	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49			08:37		09:11 (1)
	16:44	16	09:35 (1)	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56			16:24	11	09:22 (1)
10	08:47		09:18 (1)	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50			08:38		09:12 (1)
	16:45	16	09:34 (1)	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54			16:24	10	09:22 (1)
11	08:47		09:18 (1)	08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52			08:39		09:13 (1)
	16:46	16	09:34 (1)	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52			16:24	10	09:23 (1)
12	08:46		09:18 (1)	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54			08:40		09:14 (1)
	16:48	16	09:34 (1)	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51			16:24	9	09:23 (1)
13	08:45		09:20 (1)	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56			08:41		09:15 (1)
	16:49	14	09:34 (1)	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49			16:23	8	09:23 (1)
14	08:45		09:22 (1)	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58			08:42		09:16 (1)
	16:51	12	09:34 (1)	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48			16:23	8	09:24 (1)
15	08:44		09:23 (1)	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00			08:43		09:17 (1)
	16:53	10	09:33 (1)	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46			16:24	7	09:24 (1)
16	08:43		09:25 (1)	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01			08:44		09:18 (1)
	16:54	5	09:30 (1)	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45			16:24	7	09:25 (1)
17	08:42			07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03			08:45		09:19 (1)
	16:56			17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43			16:24	7	09:26 (1)
18	08:41			07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05			08:46		09:20 (1)
	16:57			17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42			16:24	6	09:26 (1)
19	08:40			07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07			08:46		09:20 (1)
	16:59			17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41			16:24	6	09:26 (1)
20	08:39			07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08			08:47		09:21 (1)
	17:01			17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39			16:25	6	09:27 (1)
21	08:38			07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10			08:48		09:21 (1)
	17:03			18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38			16:25	6	09:27 (1)
22	08:36			07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12			08:48		09:22 (1)
	17:04			18:03	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37			16:26	6	09:28 (1)
23	08:35			07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14			08:49		09:22 (1)
	17:06			18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36			16:26	6	09:28 (1)
24	08:34			07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15			08:49		09:23 (1)
	17:08			18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35			16:27	6	09:29 (1)
25	08:33			07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17			08:50		09:23 (1)
	17:10			18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33			16:27	6	09:29 (1)
26	08:31			07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19		09:04 (1)	08:50		09:23 (1)
	17:12			18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	5	09:09 (1)	16:28	6	09:29 (1)
27	08:30			07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20		09:02 (1)	08:50		09:23 (1)
	17:13			18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	10	09:12 (1)	16:29	7	09:30 (1)
28	08:28			07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22		09:01 (1)	08:50		09:23 (1)
	17:15			18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	12	09:13 (1)	16:30	7	09:30 (1)
29	08:27				07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23		09:01 (1)	08:50		09:23 (1)
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	13	09:14 (1)	16:30	8	09:31 (1)
30	08:25				07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25		09:01 (1)	08:50		09:23 (1)
	17:19				20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	15	09:16 (1)	16:31	8	09:31 (1)
31	08:24				07:17		05:23		05:55	06:46		07:32				08:51		09:23 (1)
	17:21				20:10		21:50		21:34	20:31		17:12				16:32	9	09:32 (1)
Potential sun hours	255			276	367	418	489	503	506	456	381	330	263			240		
Total, worst case		201												55			284	
Sun reduction		0.16												0.19			0.14	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		0.65												0.65			0.65	
Total reduction		0.10												0.12			0.09	
Total, real		21												7			25	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DV - H126

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
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	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DW - H127

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
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15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DX - H128

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
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	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

RECEIVED: 09/05/2025
Clare County Council - Planning Section - For Planning Purposes Only!

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DY - H129

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November	December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	16:28
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36	08:28
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16		17:08	16:28
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38	08:29
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	16:27
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39	08:31
	16:37	17:29		18:22	20:17	21:09	21:55	22:05	21:28	20:22	19:11		17:04	16:26
5	08:50	08:16		07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41	08:32
	16:38	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	16:26
6	08:49	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43	08:33
	16:40	17:32		18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01	16:25
7	08:49	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45	08:35
	16:41	17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	16:25
8	08:48	08:10		07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47	08:36
	16:42	17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	16:24
9	08:48	08:09		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49	08:37
	16:44	17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	16:24
10	08:47	08:07		07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50	08:38
	16:45	17:40		18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	16:24
11	08:47	08:05		07:05	06:52	05:50	05:15	05:27	06:13	07:05	07:56		07:52	08:39
	16:46	17:42		18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52	16:24
12	08:46	08:03		07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54	08:40
	16:48	17:44		18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	16:24
13	08:45	08:01		07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56	08:41
	16:50	17:46		18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49	16:24
14	08:45	07:59	08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58	08:42
	16:51	17:48 2	08:26 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48	16:24
15	08:44	07:57	08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00	08:43
	16:53	17:50 5	08:27 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46	16:24
16	08:43	07:55	08:20 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01	08:44
	16:54	17:52 8	08:28 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45	16:24
17	08:42	07:53	08:18 (2)	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03	08:45
	16:56	17:53 10	08:28 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43	16:24
18	08:41	07:51	08:16 (2)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:45 (2)	08:05	08:46
	16:58	17:55 12	08:28 (2)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39 8	08:53 (2)	16:42	16:24
19	08:40	07:49	08:14 (2)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:42 (2)	08:07	08:46
	16:59	17:57 14	08:28 (2)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37 13	08:55 (2)	16:41	16:24
20	08:39	07:47	08:11 (2)	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:41 (2)	08:08	08:47
	17:01	17:59 15	08:26 (2)	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35 15	08:56 (2)	16:39	16:25
21	08:38	07:45	08:09 (2)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:40 (2)	08:10	08:48
	17:03	18:01 17	08:26 (2)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32 16	08:56 (2)	16:38	16:25
22	08:36	07:43	08:10 (2)	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:42 (2)	08:12	08:48
	17:04	18:03 15	08:25 (2)	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30 15	08:57 (2)	16:37	16:26
23	08:35	07:40	08:12 (2)	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:44 (2)	08:14	08:49
	17:06	18:05 11	08:23 (2)	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28 13	08:57 (2)	16:36	16:26
24	08:34	07:38	08:15 (2)	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:46 (2)	08:15	08:49
	17:08	18:07 5	08:20 (2)	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26 11	08:57 (2)	16:35	16:27
25	08:33	07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (2)	08:17	08:50
	17:10	18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24 9	07:57 (2)	16:34	16:27
26	08:31	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (2)	08:19	08:50
	17:12	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22 7	07:57 (2)	16:33	16:28
27	08:30	07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20	08:50
	17:13	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20 4	07:56 (2)	16:32	16:29
28	08:28	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22	08:50
	17:15	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18 2	07:56 (2)	16:31	16:30
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28		08:23	08:50
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16		16:30	16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30		08:25	08:50
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14		16:29	16:31
31	08:24			07:17		05:23		05:55	06:46		07:32			08:51
	17:21			20:10		21:50		21:34	20:31		17:12			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263	240
Total, worst case			114									113		
Sun reduction			0.21									0.24		
Oper. time red.			1.00									1.00		
Wind dir. red.			0.67									0.67		
Total reduction			0.14									0.16		
Total, real			16									18		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** DZ - H130

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	06:34 (2)	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04 15	06:49 (2)	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	06:32 (2)	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06 16	06:48 (2)	21:53	22:06	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	06:31 (2)	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08 16	06:47 (2)	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	06:32 (2)	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:09 13	06:45 (2)	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	06:33 (2)	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11 11	06:44 (2)	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	06:36 (2)	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13 6	06:42 (2)	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57		05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15		21:58	22:03	21:22 8	06:52 (2)	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55		05:17	05:24	06:08	06:42 (2)	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16		21:59	22:02	21:20 12	06:54 (2)	20:13	19:02	16:57	16:25
9	08:48	08:09	07:09	06:56	05:54		05:16	05:25	06:09	06:41 (2)	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18		22:00	22:02	21:18 14	06:55 (2)	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52		05:16	05:26	06:11	06:39 (2)	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20		22:01	22:01	21:16 17	06:56 (2)	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50		05:15	05:27	06:13	06:41 (2)	07:05	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21		22:01	22:00	21:14 16	06:57 (2)	20:06	18:55	16:52	16:24
12	08:46	08:03	07:02	06:50	05:48		05:15	05:29	06:14	06:42 (2)	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23		22:02	21:59	21:12 14	06:56 (2)	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47		05:15	05:30	06:16	06:44 (2)	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:25		22:03	21:58	21:10 13	06:57 (2)	20:01	18:50	16:49	16:24
14	08:44	07:59	06:58	06:45	05:45		05:15	05:31	06:18	06:46 (2)	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26		22:03	21:57	21:08 11	06:57 (2)	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43		05:14	05:32	06:19	06:47 (2)	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28		22:04	21:56	21:06 10	06:57 (2)	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42		05:14	05:33	06:21	06:49 (2)	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29		22:04	21:55	21:04 8	06:57 (2)	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40		05:14	05:35	06:23	06:50 (2)	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31		22:05	21:54	21:02 6	06:56 (2)	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39		05:14	05:36	06:24	06:52 (2)	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32		22:05	21:53	21:00 3	06:55 (2)	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37		05:14	05:37	06:26		07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34		22:06	21:52	20:58		19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36		05:14	05:39	06:28		07:20	08:12	08:08	08:47
	17:01	17:59	18:51	20:45	21:35		22:06	21:51	20:56		19:44	18:35	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34		05:14	05:40	06:29		07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37		22:06	21:49	20:54		19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33		05:15	05:41	06:31		07:23	08:15	08:12	08:48
	17:05	18:03	18:54	20:49	21:38		22:06	21:48	20:51		19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32		05:15	05:43	06:33		07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40		22:07	21:47	20:49		19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23 06:47 (2)	05:30		05:15	05:44	06:34		07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52 1 06:48 (2)	21:41		22:07	21:45	20:47		19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21 06:45 (2)	05:29		05:15	05:46	06:36		07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54 4 06:49 (2)	21:43		22:07	21:44	20:45		19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19 06:43 (2)	05:28		05:16	05:47	06:38		07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56 6 06:49 (2)	21:44		22:07	21:42	20:43		19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17 06:41 (2)	05:27		05:16	05:49	06:39		07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57 8 06:49 (2)	21:45		22:07	21:41	20:40		19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15 06:39 (2)	05:26		05:17	05:50	06:41		07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59 10 06:49 (2)	21:47		22:07	21:39	20:38		19:25	17:18	16:31	16:30
29	08:27		07:22	06:13 06:37 (2)	05:25		05:17	05:52	06:43		07:35	07:28	08:23	08:50
	17:17		20:06	21:01 12 06:49 (2)	21:48		22:06	21:38	20:36		19:23	17:16	16:30	16:31
30	08:25		07:20	06:11 06:35 (2)	05:24		05:18	05:53	06:44		07:37	07:30	08:25	08:50
	17:19		20:08	21:03 13 06:48 (2)	21:49		22:06	21:36	20:34		19:20	17:14	16:29	16:31
31	08:24		07:17		05:23			05:55	06:46			07:32		08:50
	17:21		20:10		21:50			21:34	20:31			17:12		16:32
Potential sun hours	256	276	367	418	488		503	506	456		381	330	263	240
Total, worst case				54	77				132					
Sun reduction				0.35	0.37				0.30					
Oper. time red.				1.00	1.00				1.00					
Wind dir. red.				0.66	0.66				0.66					
Total reduction				0.23	0.24				0.20					
Total, real				13	19				26					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EA - H131

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EB - H132

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November	December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	16:28
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36	08:28
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	16:28
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38	08:29
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	16:27
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39	08:31
	16:37	17:29		18:22	20:17	21:09	21:55	22:05	21:28	20:22	19:11		17:04	16:26
5	08:50	08:16		07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41	08:32
	16:38	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	16:26
6	08:49	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43	08:33
	16:40	17:32		18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01	16:25
7	08:49	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45	08:35
	16:41	17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59	16:25
8	08:48	08:10		07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47	08:36
	16:42	17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57	16:24
9	08:48	08:09		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49	08:37
	16:44	17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56	16:24
10	08:47	08:07		07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50	08:38
	16:45	17:40		18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54	16:24
11	08:47	08:05		07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56		07:52	08:39
	16:46	17:42		18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52	16:24
12	08:46	08:03		08:28 (2)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54	08:40
	16:48	17:44	3	08:31 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51	16:24
13	08:45	08:01		08:26 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56	08:41
	16:50	17:46	6	08:32 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49	16:24
14	08:45	07:59		08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58	08:42
	16:51	17:48	8	08:32 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48	16:24
15	08:44	07:57		08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00	08:43
	16:53	17:50	10	08:32 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46	16:24
16	08:43	07:55		08:20 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01	08:44
	16:54	17:52	12	08:32 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45	16:24
17	08:42	07:53		08:18 (2)	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03	08:45
	16:56	17:53	14	08:32 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43	16:24
18	08:41	07:51		08:16 (2)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05	08:46
	16:58	17:55	15	08:31 (2)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42	16:24
19	08:40	07:49		08:15 (2)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07	08:46
	16:59	17:57	16	08:31 (2)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41	16:24
20	08:39	07:47		08:15 (2)	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:51 (2)	08:08	08:47
	17:01	17:59	13	08:28 (2)	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	4 08:55 (2)	16:39	16:25
21	08:38	07:45		08:17 (2)	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:47 (2)	08:10	08:48
	17:03	18:01	9	08:26 (2)	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	11 08:58 (2)	16:38	16:25
22	08:36	07:43			06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:45 (2)	08:12	08:48
	17:04	18:03			18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	14 08:59 (2)	16:37	16:26
23	08:35	07:40			06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:44 (2)	08:14	08:49
	17:06	18:05			18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16 09:00 (2)	16:36	16:26
24	08:34	07:38			06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:46 (2)	08:15	08:49
	17:08	18:07			18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	15 09:01 (2)	16:35	16:27
25	08:33	07:36			06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (2)	08:17	08:50
	17:10	18:09			18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	14 08:02 (2)	16:34	16:27
26	08:31	07:34			06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (2)	08:19	08:50
	17:12	18:10			19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	12 08:02 (2)	16:33	16:28
27	08:30	07:32			06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20	08:50
	17:13	18:12			19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	10 08:02 (2)	16:32	16:29
28	08:28	07:30			06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22	08:50
	17:15	18:14			19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	8 08:02 (2)	16:31	16:30
29	08:27				07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23	08:50
	17:17				20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	5 08:01 (2)	16:30	16:30
30	08:25				07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25	08:51
	17:19				20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	3 08:01 (2)	16:29	16:31
31	08:24				07:17		05:23		05:55	06:46		07:32			08:51
	17:21				20:10		21:50		21:34	20:31		17:12			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263	240
Total, worst case			106									112		
Sun reduction			0.21									0.24		
Oper. time red.			1.00									1.00		
Wind dir. red.			0.67									0.67		
Total reduction			0.14									0.16		
Total, real			15									18		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EC - H133

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50 16:34	08:22 17:23	07:27 18:16	07:15 20:12	06:09 21:04	05:22 21:52	05:51 (2) 05:56 (2)	05:19 22:06	05:50 (2) 06:03 (2)	05:56 21:33	06:48 20:29	07:38 19:18	07:34 17:10	08:26 16:28
2	08:50 16:35	08:21 17:25	07:25 18:18	07:13 20:13	06:07 21:06	05:21 21:53	05:50 (2) 05:56 (2)	05:19 22:05	05:51 (2) 06:03 (2)	05:58 21:31	06:49 20:27	07:40 19:16	07:36 17:08	08:28 16:28
3	08:50 16:36	08:19 17:27	07:23 18:20	07:10 20:15	06:05 21:08	05:20 21:54	05:50 (2) 05:57 (2)	05:20 22:05	05:52 (2) 06:04 (2)	05:59 21:29	06:51 20:24	07:42 19:13	07:37 17:06	08:29 16:27
4	08:50 16:37	08:17 17:29	07:21 18:22	07:08 20:17	06:03 21:09	05:19 21:55	05:49 (2) 05:57 (2)	05:21 22:05	05:52 (2) 06:03 (2)	06:01 21:27	06:53 20:22	07:43 19:11	07:39 17:04	08:31 16:26
5	08:50 16:38	08:16 17:30	07:18 18:23	07:06 20:19	06:01 21:11	05:19 21:56	05:49 (2) 05:58 (2)	05:22 22:04	05:53 (2) 06:03 (2)	06:03 21:26	06:54 20:20	07:45 19:08	07:41 17:03	08:32 16:26
6	08:49 16:40	08:14 17:32	07:16 18:25	07:03 20:20	05:59 21:13	05:18 21:57	05:48 (2) 05:58 (2)	05:22 22:04	05:54 (2) 06:04 (2)	06:04 21:24	06:56 20:17	07:47 19:06	07:43 17:01	08:33 16:25
7	08:49 16:41	08:12 17:34	07:14 18:27	07:01 20:22	05:57 21:15	05:17 21:58	05:48 (2) 05:58 (2)	05:23 22:03	05:55 (2) 06:04 (2)	06:06 21:22	06:58 20:15	07:49 19:04	07:45 16:59	08:34 16:25
8	08:48 16:42	08:10 17:36	07:11 18:29	06:59 20:24	05:55 21:16	05:17 21:59	05:47 (2) 05:58 (2)	05:24 22:02	05:56 (2) 06:04 (2)	06:08 21:20	06:59 20:13	07:50 19:01	07:47 16:57	08:36 16:25
9	08:48 16:44	08:08 17:38	07:09 18:31	06:56 20:26	05:54 21:18	05:16 22:00	05:47 (2) 05:58 (2)	05:25 22:02	05:57 (2) 06:05 (2)	06:09 21:18	07:01 20:10	07:52 18:59	07:49 16:56	08:37 16:24
10	08:47 16:45	08:07 17:40	07:07 18:33	06:54 20:28	05:52 21:20	05:16 22:00	05:46 (2) 05:58 (2)	05:26 22:01	05:58 (2) 06:05 (2)	06:11 21:16	07:03 20:08	07:54 18:57	07:50 16:54	08:38 16:24
11	08:47 16:47	08:05 17:42	07:05 18:34	06:52 20:29	05:50 21:21	05:15 22:01	05:46 (2) 05:58 (2)	05:27 22:00	05:59 (2) 06:05 (2)	06:13 21:14	07:05 20:06	07:56 18:55	07:52 16:52	08:39 16:24
12	08:46 16:48	08:03 17:44	07:02 18:36	06:49 20:31	05:48 21:23	05:15 22:02	05:46 (2) 05:59 (2)	05:29 21:59	06:00 (2) 06:05 (2)	06:14 21:12	07:06 20:03	07:57 18:52	07:54 16:51	08:40 16:24
13	08:45 16:50	08:01 17:46	07:00 18:38	06:47 20:33	05:47 21:24	05:15 22:03	05:46 (2) 05:59 (2)	05:30 21:58	06:01 (2) 06:04 (2)	06:16 21:10	07:08 20:01	07:59 18:50	07:56 16:49	08:41 16:24
14	08:44 16:51	07:59 17:48	06:58 18:40	06:45 20:35	05:45 21:26	05:15 22:03	05:45 (2) 05:58 (2)	05:31 21:57	06:02 (2) 06:04 (2)	06:18 21:08	07:10 19:58	08:01 18:48	07:58 16:48	08:42 16:24
15	08:44 16:53	07:57 17:50	06:55 18:42	06:43 20:36	05:43 21:28	05:14 22:04	05:45 (2) 05:59 (2)	05:32 21:56	06:03 (2) 06:04 (2)	06:19 21:06	07:11 19:56	08:03 18:46	08:00 16:46	08:43 16:24
16	08:43 16:54	07:55 17:52	06:53 18:43	06:40 20:38	05:42 21:29	05:14 22:04	05:45 (2) 05:59 (2)	05:33 21:55		06:21 21:04	07:13 19:54	08:05 18:43	08:01 16:45	08:44 16:24
17	08:42 16:56	07:53 17:53	06:50 18:45	06:38 20:40	05:40 21:31	05:14 22:05	05:45 (2) 05:59 (2)	05:35 21:54		06:23 21:02	07:15 19:51	08:06 18:41	08:03 16:43	08:45 16:24
18	08:41 16:58	07:51 17:55	06:48 18:47	06:36 20:42	05:39 21:32	05:14 22:05	05:45 (2) 05:59 (2)	05:36 21:53		06:24 21:00	07:16 19:49	08:08 18:39	08:05 16:42	08:46 16:24
19	08:40 16:59	07:49 17:57	06:46 18:49	06:34 20:43	05:37 21:34	05:14 22:06	05:45 (2) 05:59 (2)	05:37 21:52		06:26 20:58	07:18 19:46	08:10 18:37	08:07 16:41	08:46 16:24
20	08:39 17:01	07:47 17:59	06:43 18:51	06:32 20:45	05:36 21:35	05:14 22:06	05:46 (2) 06:00 (2)	05:39 21:51		06:28 20:56	07:20 19:44	08:12 18:35	08:08 16:39	08:47 16:25
21	08:38 17:03	07:45 18:01	06:41 18:52	06:29 20:47	05:34 21:37	05:14 22:06	05:46 (2) 06:00 (2)	05:40 21:49		06:29 20:54	07:21 19:42	08:14 18:32	08:10 16:38	08:48 16:25
22	08:36 17:05	07:43 18:03	06:39 18:54	06:27 20:49	05:33 21:38	05:15 22:06	05:46 (2) 06:00 (2)	05:41 21:48		06:31 20:51	07:23 19:39	08:15 18:30	08:12 16:37	08:48 16:26
23	08:35 17:06	07:40 18:05	06:36 18:56	06:25 20:50	05:32 21:40	05:15 22:07	05:46 (2) 06:00 (2)	05:43 21:47		06:33 20:49	07:25 19:37	08:17 18:28	08:13 16:36	08:49 16:26
24	08:34 17:08	07:38 18:07	06:34 18:58	06:23 20:52	05:30 21:41	05:15 22:07	05:47 (2) 06:01 (2)	05:44 21:45		06:34 20:47	07:26 19:34	08:19 18:26	08:15 16:35	08:49 16:27
25	08:33 17:10	07:36 18:09	06:32 18:59	06:21 20:54	05:29 21:43	05:15 22:07	05:47 (2) 06:01 (2)	05:46 21:44		06:36 20:45	07:28 19:32	07:21 17:24	08:17 16:34	08:49 16:27
26	08:31 17:12	07:34 18:10	06:29 19:01	06:19 20:56	05:28 21:44	05:16 22:07	05:47 (2) 06:01 (2)	05:47 21:42		06:38 20:43	07:30 19:30	07:23 17:22	08:18 16:33	08:50 16:28
27	08:30 17:14	07:32 18:12	06:27 19:03	06:17 20:57	05:27 21:45	05:16 22:07	05:48 (2) 06:02 (2)	05:49 21:41		06:39 20:40	07:31 19:27	07:25 17:20	08:20 16:32	08:50 16:29
28	08:28 17:15	07:30 18:14	06:24 19:05	06:15 20:59	05:26 21:47	05:17 22:07	05:48 (2) 06:02 (2)	05:50 21:39		06:41 20:38	07:33 19:25	07:26 17:18	08:22 16:31	08:50 16:30
29	08:27 17:17		07:22 20:06	06:13 21:01	05:25 21:48 2	05:54 (2) 05:56 (2)	05:17 22:06	05:49 (2) 06:02 (2)	05:52 21:38	06:43 20:36	07:35 19:23	07:28 17:16	08:23 16:30	08:50 16:31
30	08:25 17:19		07:20 20:08	06:11 21:03	05:24 21:49 3	05:53 (2) 05:56 (2)	05:18 22:06	05:49 (2) 06:02 (2)	05:53 21:36	06:44 20:34	07:37 19:20	07:30 17:14	08:25 16:29	08:50 16:31
31	08:24 17:21		07:17 20:10		05:23 21:50 4	05:52 (2) 05:56 (2)			05:55 21:34	06:46 20:31		07:32 17:12		08:50 16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case					9	362	117					
Sun reduction					0.37	0.30	0.26					
Oper. time red.					1.00	1.00	1.00					
Wind dir. red.					0.62	0.62	0.62					
Total reduction					0.23	0.19	0.17					
Total, real					2	67	19					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** ED - H134

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EE - H135

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:50	08:22	07:27		07:15		06:08	05:22	05:18	05:56	06:48		07:38	07:34	08:26
	16:34	17:23	18:16		20:12		21:04	21:51	22:06	21:32	20:29		19:18	17:10	16:28
2	08:50	08:20	07:25		07:12		06:06	05:21	05:19	05:58	06:49		07:40	07:35	08:28
	16:35	17:25	18:18		20:13		21:06	21:53	22:05	21:31	20:26		19:15	17:08	16:27
3	08:50	08:19	07:23		07:10	19:47 (1)	06:04	05:20	05:20	05:59	06:51	19:48 (1)	07:42	07:37	08:29
	16:36	17:26	18:20		20:15	1 19:48 (1)	21:08	21:54	22:05	21:29	20:24	8 19:56 (1)	19:13	17:06	16:27
4	08:50	08:17	07:20		07:08	19:47 (1)	06:03	05:19	05:21	06:01	06:53	19:46 (1)	07:43	07:39	08:30
	16:37	17:28	18:21		20:17	4 19:51 (1)	21:09	21:55	22:04	21:27	20:22	9 19:55 (1)	19:11	17:04	16:26
5	08:49	08:15	07:18		07:05	19:47 (1)	06:01	05:18	05:21	06:02	06:54	19:44 (1)	07:45	07:41	08:32
	16:38	17:30	18:23		20:19	6 19:53 (1)	21:11	21:56	22:04	21:25	20:19	8 19:52 (1)	19:08	17:02	16:26
6	08:49	08:14	07:16		07:03	19:47 (1)	05:59	05:18	05:22	06:04	06:56	19:43 (1)	07:47	07:43	08:33
	16:39	17:32	18:25		20:20	7 19:54 (1)	21:13	21:57	22:03	21:24	20:17	7 19:50 (1)	19:06	17:01	16:25
7	08:49	08:12	07:14		07:01	19:48 (1)	05:57	05:17	05:23	06:06	06:58	19:42 (1)	07:49	07:45	08:34
	16:41	17:34	18:27		20:22	8 19:56 (1)	21:14	21:58	22:03	21:22	20:15	6 19:48 (1)	19:04	16:59	16:25
8	08:48	08:10	07:11		06:58	19:49 (1)	05:55	05:17	05:24	06:07	06:59	19:41 (1)	07:50	07:47	08:36
	16:42	17:36	18:29		20:24	8 19:57 (1)	21:16	21:59	22:02	21:20	20:12	4 19:45 (1)	19:01	16:57	16:24
9	08:48	08:08	07:09		06:56	19:50 (1)	05:53	05:16	05:25	06:09	07:01	19:41 (1)	07:52	07:48	08:37
	16:43	17:38	18:31		20:26	8 19:58 (1)	21:18	22:00	22:01	21:18	20:10	2 19:43 (1)	18:59	16:55	16:24
10	08:47	08:06	07:07		06:54		05:52	05:16	05:26	06:11	07:03		07:54	07:50	08:38
	16:45	17:40	18:32		20:27		21:19	22:00	22:01	21:16	20:08		18:57	16:54	16:24
11	08:47	08:05	07:04		06:52		05:50	05:15	05:27	06:12	07:04		07:56	07:52	08:39
	16:46	17:42	18:34		20:29		21:21	22:01	22:00	21:14	20:05		18:54	16:52	16:24
12	08:46	08:03	07:02		06:49		05:48	05:15	05:28	06:14	07:06		07:57	07:54	08:40
	16:48	17:44	18:36		20:31		21:23	22:02	21:59	21:12	20:03		18:52	16:51	16:23
13	08:45	08:01	07:00		06:47		05:46	05:15	05:29	06:16	07:08		07:59	07:56	08:41
	16:49	17:46	18:38		20:33		21:24	22:02	21:58	21:10	20:01		18:50	16:49	16:23
14	08:44	07:59	06:57	18:13 (3)	06:45		05:45	05:14	05:31	06:17	07:09		08:01	07:58	08:42
	16:51	17:48	18:40	1 18:14 (3)	20:34		21:26	22:03	21:57	21:08	19:58		18:48	16:47	16:23
15	08:43	07:57	06:55	18:11 (3)	06:42		05:43	05:14	05:32	06:19	07:11		08:03	07:59	08:43
	16:52	17:49	18:41	4 18:15 (3)	20:36		21:28	22:04	21:56	21:06	19:56		18:45	16:46	16:23
16	08:43	07:55	06:53	18:12 (3)	06:40		05:42	05:14	05:33	06:21	07:13		08:04	08:01	08:44
	16:54	17:51	18:43	5 18:17 (3)	20:38		21:29	22:04	21:55	21:04	19:53		18:43	16:45	16:24
17	08:42	07:53	06:50	18:11 (3)	06:38		05:40	05:14	05:34	06:22	07:14		08:06	08:03	08:45
	16:56	17:53	18:45	8 18:19 (3)	20:40		21:31	22:05	21:54	21:02	19:51		18:41	16:43	16:24
18	08:41	07:51	06:48	18:12 (3)	06:36		05:38	05:14	05:36	06:24	07:16		08:08	08:05	08:45
	16:57	17:55	18:47	9 18:21 (3)	20:41		21:32	22:05	21:53	21:00	19:49		18:39	16:42	16:24
19	08:40	07:49	06:46	18:13 (3)	06:34		05:37	05:14	05:37	06:26	07:18		08:10	08:06	08:46
	16:59	17:57	18:49	10 18:23 (3)	20:43		21:34	22:05	21:52	20:58	19:46		18:37	16:40	16:24
20	08:38	07:47	06:43	18:13 (3)	06:31		05:36	05:14	05:38	06:27	07:19		08:12	08:08	08:47
	17:01	17:59	18:50	11 18:24 (3)	20:45		21:35	22:06	21:50	20:56	19:44		18:34	16:39	16:25
21	08:37	07:44	06:41	18:16 (3)	06:29		05:34	05:14	05:40	06:29	07:21		08:13	08:10	08:47
	17:03	18:01	18:52	7 18:23 (3)	20:47		21:37	22:06	21:49	20:53	19:41		18:32	16:38	16:25
22	08:36	07:42	06:38		06:27		05:33	05:14	05:41	06:31	07:23	19:02 (3)	08:15	08:12	08:48
	17:04	18:03	18:54		20:48		21:38	22:06	21:48	20:51	19:39	5 19:07 (3)	18:30	16:37	16:25
23	08:35	07:40	06:36		06:25		05:32	05:15	05:42	06:32	07:24	18:58 (3)	08:17	08:13	08:48
	17:06	18:05	18:56		20:50		21:40	22:06	21:46	20:49	19:37	11 19:09 (3)	18:28	16:36	16:26
24	08:34	07:38	06:34		06:23		05:30	05:15	05:44	06:34	07:26	18:57 (3)	08:19	08:15	08:49
	17:08	18:06	18:57		20:52		21:41	22:07	21:45	20:47	19:34	10 19:07 (3)	18:26	16:34	16:27
25	08:32	07:36	06:31		06:21		05:29	05:15	05:45	06:36	07:28	18:55 (3)	07:21	08:17	08:49
	17:10	18:08	18:59		20:54		21:42	22:07	21:44	20:45	19:32	9 19:04 (3)	17:24	16:33	16:27
26	08:31	07:34	06:29		06:19		05:28	05:16	05:47	06:37	07:30	18:54 (3)	07:23	08:18	08:50
	17:11	18:10	19:01		20:55		21:44	22:07	21:42	20:42	19:30	8 19:02 (3)	17:22	16:32	16:28
27	08:30	07:32	06:27		06:16		05:27	05:16	05:48	06:39	07:31	18:53 (3)	07:24	08:20	08:50
	17:13	18:12	19:03		20:57		21:45	22:06	21:41	20:40	19:27	7 19:00 (3)	17:20	16:31	16:29
28	08:28	07:29	06:24		06:14		05:26	05:16	05:50	06:41	07:33	18:52 (3)	07:26	08:21	08:50
	17:15	18:14	19:04		20:59		21:47	22:06	21:39	20:38	19:25	5 18:57 (3)	17:18	16:30	16:29
29	08:27		07:22		06:12		05:24	05:17	05:51	06:42	07:35	18:52 (3)	07:28	08:23	08:50
	17:17		20:06		21:01		21:48	22:06	21:37	20:36	19:22	3 18:55 (3)	17:16	16:30	16:30
30	08:25		07:20		06:10		05:23	05:18	05:53	06:44	07:36		07:30	08:25	08:50
	17:19		20:08		21:02		21:49	22:06	21:36	20:33	19:20		17:14	16:29	16:31
31	08:24		07:17				05:23		05:55	06:46			07:32		08:50
	17:21		20:10				21:50		21:34	20:31			17:12		16:32
Potential sun hours	256	276	367		418		489	503	506	456	381		330	263	240
Total, worst case				55		42						102			
Sun reduction				0.24		0.35						0.28			
Oper. time red.				1.00		1.00						1.00			
Wind dir. red.				0.67		0.68						0.68			
Total reduction				0.16		0.24						0.19			
Total, real				9		10						20			

Clare County Planning Authority - Inspection Purposes Only!

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EF - H136

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November		December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:02 (2)	08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	1 08:03 (2)	16:28
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:28
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16		17:08		16:28
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38		08:29
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06		16:27
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39		08:31
	16:37	17:29		18:22	20:17	21:09	21:55	22:05	21:28	20:22	19:11		17:04		16:26
5	08:50	08:16		07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41		08:32
	16:38	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03		16:26
6	08:49	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:33
	16:40	17:32		18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01		16:25
7	08:49	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:35
	16:41	17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59		16:25
8	08:48	08:10		07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47		08:36
	16:42	17:36		18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57		16:24
9	08:48	08:09		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:37
	16:44	17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56		16:24
10	08:47	08:07	08:32 (2)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:38
	16:45	17:40	2 08:34 (2)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54		16:24
11	08:47	08:05	08:30 (2)	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56		07:52		08:39
	16:46	17:42	5 08:35 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52		16:24
12	08:46	08:03	08:28 (2)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54		08:40
	16:48	17:44	7 08:35 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51		16:24
13	08:45	08:01	08:26 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		08:41
	16:49	17:46	9 08:35 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49		16:24
14	08:45	07:59	08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58		08:42
	16:51	17:48	11 08:35 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48		16:24
15	08:44	07:57	08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:43
	16:53	17:50	13 08:35 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46		16:24
16	08:43	07:55	08:20 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:44
	16:54	17:52	15 08:35 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45		16:24
17	08:42	07:53	08:18 (2)	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03		08:45
	16:56	17:53	16 08:34 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43		16:24
18	08:41	07:51	08:19 (2)	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:46
	16:58	17:55	14 08:33 (2)	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42		16:24
19	08:40	07:49	08:21 (2)	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:46
	16:59	17:57	10 08:31 (2)	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41		16:24
20	08:39	07:47	08:23 (2)	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08		08:47
	17:01	17:59	4 08:27 (2)	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35		16:39		16:25
21	08:38	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:48
	17:03	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38		16:25
22	08:36	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:52 (2)	08:12		08:48
	17:04	18:03		18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	7 08:59 (2)	16:37		16:26
23	08:35	07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:49 (2)	08:14		08:49
	17:06	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	12 09:01 (2)	16:36		16:26
24	08:34	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:48 (2)	08:15		08:49
	17:08	18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	15 09:03 (2)	16:35		16:27
25	08:33	07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:48 (2)	08:17		08:50
	17:10	18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16 08:04 (2)	16:34		16:27
26	08:31	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:50 (2)	08:19		08:50
	17:12	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	14 08:04 (2)	16:33		16:28
27	08:30	07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20		08:50
	17:13	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	13 08:05 (2)	16:32		16:29
28	08:28	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22		08:50
	17:15	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	11 08:05 (2)	16:31		16:30
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23		08:50
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	9 08:05 (2)	16:30		16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25		08:51
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	7 08:05 (2)	16:29		16:31
31	08:24			07:17		05:23		05:55	06:46		07:32	08:00 (2)			08:51
	17:21			20:10		21:51		21:34	20:31		17:12	4 08:04 (2)			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263		240
Total, worst case			106									108		1	
Sun reduction			0.21									0.24		0.19	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			0.67									0.67		0.67	
Total reduction			0.14									0.16		0.12	
Total, real			15									17		0	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Planning Authority - Inspection Purposes Only!

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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EG - H137

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
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13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EH - H138

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:42	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
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25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EI - H139

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
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22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EJ - H140

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
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15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
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	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:15	18:14	19:05	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EK - H141

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:50	08:22	07:27		07:15		06:08	05:22	05:18	05:56	06:48		07:38	07:34	08:26
	16:34	17:23	18:16		20:11		21:04	21:51	22:06	21:32	20:29		19:18	17:10	16:28
2	08:50	08:20	07:25		07:12	19:45 (1)	06:06	05:21	05:19	05:58	06:49		07:40	07:35	08:28
	16:35	17:25	18:18		20:13	2 19:47 (1)	21:06	21:53	22:05	21:31	20:26		19:15	17:08	16:27
3	08:50	08:19	07:23		07:10	19:44 (1)	06:04	05:20	05:20	05:59	06:51		07:42	07:37	08:29
	16:36	17:26	18:20		20:15	4 19:48 (1)	21:08	21:54	22:05	21:29	20:24		19:13	17:06	16:27
4	08:50	08:17	07:20		07:08	19:45 (1)	06:03	05:19	05:21	06:01	06:53	19:48 (1)	07:43	07:39	08:30
	16:37	17:28	18:21		20:17	6 19:51 (1)	21:09	21:55	22:04	21:27	20:22	3 19:51 (1)	19:11	17:04	16:26
5	08:49	08:15	07:18		07:05	19:45 (1)	06:01	05:18	05:21	06:02	06:54	19:43 (1)	07:45	07:41	08:32
	16:38	17:30	18:23		20:19	8 19:53 (1)	21:11	21:56	22:04	21:25	20:19	9 19:52 (1)	19:08	17:02	16:26
6	08:49	08:14	07:16		07:03	19:46 (1)	05:59	05:18	05:22	06:04	06:56	19:42 (1)	07:47	07:43	08:33
	16:39	17:32	18:25		20:20	8 19:54 (1)	21:13	21:57	22:03	21:24	20:17	8 19:50 (1)	19:06	17:01	16:25
7	08:49	08:12	07:14		07:01	19:47 (1)	05:57	05:17	05:23	06:06	06:58	19:41 (1)	07:49	07:45	08:34
	16:41	17:34	18:27		20:22	9 19:56 (1)	21:14	21:58	22:03	21:22	20:15	7 19:48 (1)	19:04	16:59	16:25
8	08:48	08:10	07:11		06:58	19:51 (1)	05:55	05:17	05:24	06:07	06:59	19:39 (1)	07:50	07:47	08:36
	16:42	17:36	18:29		20:24	3 19:54 (1)	21:16	21:59	22:02	21:20	20:12	6 19:45 (1)	19:01	16:57	16:24
9	08:48	08:08	07:09		06:56		05:53	05:16	05:25	06:09	07:01	19:39 (1)	07:52	07:48	08:37
	16:43	17:38	18:31		20:26		21:18	22:00	22:01	21:18	20:10	4 19:43 (1)	18:59	16:55	16:24
10	08:47	08:06	07:07		06:54		05:52	05:16	05:26	06:11	07:03	19:38 (1)	07:54	07:50	08:38
	16:45	17:40	18:32		20:27		21:19	22:00	22:01	21:16	20:08	3 19:41 (1)	18:57	16:54	16:24
11	08:47	08:05	07:04		06:52		05:50	05:15	05:27	06:12	07:04		07:56	07:52	08:39
	16:46	17:42	18:34		20:29		21:21	22:01	22:00	21:14	20:05		18:54	16:52	16:24
12	08:46	08:03	07:02		06:49		05:48	05:15	05:28	06:14	07:06		07:57	07:54	08:40
	16:48	17:44	18:36		20:31		21:23	22:02	21:59	21:12	20:03		18:52	16:51	16:23
13	08:45	08:01	07:00	18:11 (3)	06:47		05:46	05:15	05:29	06:16	07:08		07:59	07:56	08:41
	16:49	17:46	18:38	1 18:12 (3)	20:33		21:24	22:02	21:58	21:10	20:01		18:50	16:49	16:23
14	08:44	07:59	06:57	18:10 (3)	06:45		05:45	05:14	05:31	06:17	07:09		08:01	07:58	08:42
	16:51	17:48	18:40	4 18:14 (3)	20:34		21:26	22:03	21:57	21:08	19:58		18:48	16:47	16:23
15	08:43	07:57	06:55	18:10 (3)	06:42		05:43	05:14	05:32	06:19	07:11		08:03	07:59	08:43
	16:52	17:49	18:41	5 18:15 (3)	20:36		21:28	22:04	21:56	21:06	19:56		18:45	16:46	16:23
16	08:43	07:55	06:53	18:10 (3)	06:40		05:42	05:14	05:33	06:21	07:13		08:04	08:01	08:44
	16:54	17:51	18:43	7 18:17 (3)	20:38		21:29	22:04	21:55	21:04	19:53		18:43	16:45	16:24
17	08:42	07:53	06:50	18:10 (3)	06:38		05:40	05:14	05:34	06:22	07:14		08:06	08:03	08:45
	16:56	17:53	18:45	9 18:19 (3)	20:40		21:31	22:05	21:54	21:02	19:51		18:41	16:43	16:24
18	08:41	07:51	06:48	18:11 (3)	06:36		05:38	05:14	05:36	06:24	07:16		08:08	08:05	08:45
	16:57	17:55	18:47	10 18:21 (3)	20:41		21:32	22:05	21:53	21:00	19:49		18:39	16:42	16:24
19	08:40	07:49	06:46	18:13 (3)	06:34		05:37	05:14	05:37	06:26	07:18		08:10	08:06	08:46
	16:59	17:57	18:49	10 18:23 (3)	20:43		21:34	22:05	21:52	20:58	19:46		18:37	16:40	16:24
20	08:38	07:47	06:43	18:15 (3)	06:31		05:36	05:14	05:38	06:27	07:19		08:12	08:08	08:47
	17:01	17:59	18:50	5 18:20 (3)	20:45		21:35	22:06	21:50	20:56	19:44		18:34	16:39	16:25
21	08:37	07:44	06:41		06:29		05:34	05:14	05:40	06:29	07:21		08:13	08:10	08:47
	17:03	18:01	18:52		20:47		21:37	22:06	21:49	20:53	19:41		18:32	16:38	16:25
22	08:36	07:42	06:38		06:27		05:33	05:14	05:41	06:31	07:23		08:15	08:12	08:48
	17:04	18:03	18:54		20:48		21:38	22:06	21:48	20:51	19:39		18:30	16:37	16:25
23	08:35	07:40	06:36		06:25		05:32	05:15	05:42	06:32	07:24		08:17	08:13	08:48
	17:06	18:05	18:56		20:50		21:40	22:06	21:46	20:49	19:37		18:28	16:36	16:26
24	08:34	07:38	06:34		06:23		05:30	05:15	05:44	06:34	07:26	18:57 (3)	08:19	08:15	08:49
	17:08	18:06	18:57		20:52		21:41	22:07	21:45	20:47	19:34	10 19:07 (3)	18:26	16:34	16:27
25	08:32	07:36	06:31		06:21		05:29	05:15	05:45	06:36	07:28	18:54 (3)	07:21	08:17	08:49
	17:10	18:08	18:59		20:54		21:42	22:07	21:44	20:45	19:32	10 19:04 (3)	17:24	16:33	16:27
26	08:31	07:34	06:29		06:19		05:28	05:16	05:47	06:37	07:30	18:53 (3)	07:23	08:18	08:50
	17:11	18:10	19:01		20:55		21:44	22:07	21:42	20:42	19:30	9 19:02 (3)	17:22	16:32	16:28
27	08:30	07:32	06:27		06:16		05:27	05:16	05:48	06:39	07:31	18:52 (3)	07:24	08:20	08:50
	17:13	18:12	19:03		20:57		21:45	22:06	21:41	20:40	19:27	8 19:00 (3)	17:20	16:31	16:29
28	08:28	07:29	06:24		06:14		05:26	05:16	05:50	06:41	07:33	18:50 (3)	07:26	08:21	08:50
	17:15	18:14	19:04		20:59		21:47	22:06	21:39	20:38	19:25	7 18:57 (3)	17:18	16:30	16:29
29	08:27		07:22		06:12		05:24	05:17	05:51	06:42	07:35	18:50 (3)	07:28	08:23	08:50
	17:17		20:06		21:01		21:48	22:06	21:37	20:36	19:22	5 18:55 (3)	17:16	16:30	16:30
30	08:25		07:20		06:10		05:23	05:18	05:53	06:44	07:36	18:50 (3)	07:30	08:25	08:50
	17:19		20:08		21:02		21:49	22:06	21:36	20:33	19:20	2 18:52 (3)	17:14	16:29	16:31
31	08:24		07:17				05:23		05:54	06:46			07:32		08:50
	17:21		20:10				21:50		21:34	20:31			17:12		16:32
Potential sun hours	256	276	367		418		489	503	506	456	381		330	263	240
Total, worst case				51		40						91			
Sun reduction				0.24		0.35						0.28			
Oper. time red.				1.00		1.00						1.00			
Wind dir. red.				0.67		0.68						0.67			
Total reduction				0.16		0.24						0.19			
Total, real				8		10						17			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Planning Authority - Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EL - H142

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November		December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:02 (2)	08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	12 08:14 (2)	16:28
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36	08:04 (2)	08:28
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15		17:08	10 08:14 (2)	16:28
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38	08:06 (2)	08:29
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	8 08:14 (2)	16:27
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39	08:08 (2)	08:31
	16:37	17:29		18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11		17:04	5 08:13 (2)	16:26
5	08:50	08:16	08:42 (2)	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41	08:10 (2)	08:32
	16:38	17:30	1 08:43 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	3 08:13 (2)	16:26
6	08:49	08:14	08:40 (2)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:33
	16:40	17:32	3 08:43 (2)	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01		16:25
7	08:49	08:12	08:38 (2)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:35
	16:41	17:34	6 08:44 (2)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59		16:25
8	08:48	08:10	08:36 (2)	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47		08:36
	16:42	17:36	8 08:44 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57		16:24
9	08:48	08:09	08:34 (2)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:37
	16:44	17:38	10 08:44 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56		16:24
10	08:47	08:07	08:32 (2)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:38
	16:45	17:40	12 08:44 (2)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54		16:24
11	08:47	08:05	08:30 (2)	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56		07:52		08:39
	16:46	17:42	14 08:44 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52		16:24
12	08:46	08:03	08:28 (2)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54		08:40
	16:48	17:44	15 08:43 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51		16:24
13	08:45	08:01	08:27 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		08:41
	16:49	17:46	15 08:42 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49		16:24
14	08:45	07:59	08:28 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58		08:42
	16:51	17:48	13 08:41 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48		16:24
15	08:44	07:57	08:30 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:43
	16:53	17:50	9 08:39 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46		16:24
16	08:43	07:55		06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:44
	16:54	17:52		18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45		16:24
17	08:42	07:53		06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03		08:45
	16:56	17:53		18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43		16:24
18	08:41	07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:46
	16:58	17:55		18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42		16:24
19	08:40	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:46
	16:59	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41		16:24
20	08:39	07:47		06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08		08:47
	17:01	17:59		18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35		16:39		16:25
21	08:38	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:48
	17:03	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38		16:25
22	08:36	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12		08:48
	17:04	18:03		18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30		16:37		16:26
23	08:35	07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14		08:49
	17:06	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36		16:26
24	08:34	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15		08:49
	17:08	18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35		16:27
25	08:33	07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21		08:17		08:50
	17:10	18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:34		16:27
26	08:31	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:19		08:50
	17:12	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:33		16:28
27	08:30	07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:59 (2)	08:20		08:50
	17:13	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	10 08:09 (2)	16:32		16:29
28	08:28	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:57 (2)	08:22		08:50
	17:15	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	14 08:11 (2)	16:31		16:30
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23		08:50
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16 08:12 (2)	16:30		16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25		08:51
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	15 08:13 (2)	16:29		16:31
31	08:24			07:17		05:23		05:55	06:46		07:32	08:00 (2)			08:51
	17:21			20:10		21:51		21:34	20:31		17:12	13 08:13 (2)			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263		240
Total, worst case			106									68		38	
Sun reduction			0.21									0.24		0.19	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			0.66									0.66		0.66	
Total reduction			0.14									0.16		0.12	
Total, real			15									11		5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EM - H143

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
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12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
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21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
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	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EN - H144

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
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	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
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	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
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	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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+353719161416
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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EO - H145

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
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	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
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	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
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	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EP - H146

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November		December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34	08:02 (2)	08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	08:09 (2)	16:28
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36	08:04 (2)	08:28
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16		17:08	08:08 (2)	16:28
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38	08:06 (2)	08:29
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	08:08 (2)	16:27
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39		08:31
	16:37	17:29		18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11		17:04		16:26
5	08:50	08:16		07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41		08:32
	16:38	17:30		18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03		16:26
6	08:49	08:14		07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:33
	16:40	17:32		18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01		16:25
7	08:49	08:12		07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:35
	16:41	17:34		18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59		16:25
8	08:48	08:10	08:36 (2)	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47		08:36
	16:42	17:36	2 08:38 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57		16:24
9	08:48	08:09	08:34 (2)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		08:37
	16:44	17:38	5 08:39 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56		16:24
10	08:47	08:07	08:32 (2)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		08:38
	16:45	17:40	7 08:39 (2)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54		16:24
11	08:47	08:05	08:30 (2)	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56		07:52		08:39
	16:46	17:42	9 08:39 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52		16:24
12	08:46	08:03	08:28 (2)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54		08:40
	16:48	17:44	11 08:39 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51		16:24
13	08:45	08:01	08:26 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		08:41
	16:49	17:46	13 08:39 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49		16:24
14	08:45	07:59	08:24 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58		08:42
	16:51	17:48	14 08:38 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48		16:24
15	08:44	07:57	08:22 (2)	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		08:43
	16:53	17:50	16 08:38 (2)	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46		16:24
16	08:43	07:55	08:24 (2)	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		08:44
	16:54	17:52	12 08:36 (2)	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45		16:24
17	08:42	07:53	08:26 (2)	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03		08:45
	16:56	17:53	8 08:34 (2)	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43		16:24
18	08:41	07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		08:46
	16:58	17:55		18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42		16:24
19	08:40	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		08:46
	16:59	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41		16:24
20	08:39	07:47		06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08		08:47
	17:01	17:59		18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35		16:39		16:25
21	08:38	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		08:48
	17:03	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38		16:25
22	08:36	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12		08:48
	17:04	18:03		18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30		16:37		16:26
23	08:35	07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14		08:49
	17:06	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36		16:26
24	08:34	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:59 (2)	08:15		08:49
	17:08	18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	1 09:00 (2)	16:35		16:27
25	08:33	07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	07:55 (2)	08:17		08:50
	17:10	18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	10 08:05 (2)	16:34		16:27
26	08:31	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	07:53 (2)	08:19		08:50
	17:12	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	13 08:06 (2)	16:33		16:28
27	08:30	07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	07:52 (2)	08:20		08:50
	17:13	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	15 08:07 (2)	16:32		16:29
28	08:28	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	07:54 (2)	08:22		08:50
	17:15	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	14 08:08 (2)	16:31		16:30
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:56 (2)	08:23		08:50
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	13 08:09 (2)	16:30		16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25		08:51
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	11 08:09 (2)	16:29		16:31
31	08:24			07:17		05:23		05:55	06:46		07:32	08:00 (2)			08:51
	17:21			20:10		21:51		21:34	20:31		17:12	9 08:09 (2)			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263		240
Total, worst case			97									86		13	
Sun reduction			0.21									0.24		0.19	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			0.67									0.67		0.67	
Total reduction			0.14									0.16		0.12	
Total, real			13									14		2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Planning Authority - Inspection Purposes Only!

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EQ - H147

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April		May	June	July	August		September	October	November	December
1	08:50	08:22	07:27	07:15		06:08	05:22	05:18	05:56		06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:11		21:04	21:51	22:06	21:32		20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12		06:06	05:21	05:19	05:58		06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13		21:06	21:53	22:05	21:31		20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10		06:04	05:20	05:20	05:59		06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15		21:08	21:54	22:05	21:29		20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08		06:03	05:19	05:21	06:01		06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17		21:09	21:55	22:04	21:27		20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05		06:01	05:18	05:21	06:02		06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19		21:11	21:56	22:04	21:25		20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03		05:59	05:18	05:22	06:04		06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20		21:13	21:57	22:03	21:24		20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01		05:57	05:17	05:23	06:06		06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22		21:14	21:58	22:03	21:22		20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58		05:55	05:17	05:24	06:07		06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24		21:16	21:59	22:02	21:20		20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56		05:53	05:16	05:25	06:09		07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26		21:18	21:59	22:01	21:18		20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54		05:52	05:16	05:26	06:11		07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27		21:19	22:00	22:01	21:16		20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52		05:50	05:15	05:27	06:12		07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29		21:21	22:01	22:00	21:14		20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49		05:48	05:15	05:28	06:14		07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31		21:23	22:02	21:59	21:12		20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47		05:46	05:15	05:29	06:16		07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33		21:24	22:02	21:58	21:10		20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45		05:45	05:14	05:31	06:17		07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34		21:26	22:03	21:57	21:08		19:58	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42		05:43	05:14	05:32	06:19		07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36		21:28	22:04	21:56	21:06		19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40		05:42	05:14	05:33	06:21		07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38		21:29	22:04	21:55	21:04		19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	20:11 (3)	05:40	05:14	05:34	06:22		07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	2 20:13 (3)	21:31	22:05	21:54	21:02		19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	20:11 (3)	05:39	05:14	05:36	06:24		07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	3 20:14 (3)	21:32	22:05	21:53	21:00		19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	20:10 (3)	05:37	05:14	05:37	06:26	20:21 (3)	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	5 20:15 (3)	21:34	22:05	21:52	20:58	6 20:27 (3)	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	20:10 (3)	05:36	05:14	05:38	06:27	20:19 (3)	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	7 20:17 (3)	21:35	22:06	21:50	20:56	8 20:27 (3)	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	20:11 (3)	05:34	05:14	05:40	06:29	20:16 (3)	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	8 20:19 (3)	21:37	22:06	21:49	20:53	9 20:25 (3)	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	20:12 (3)	05:33	05:14	05:41	06:31	20:16 (3)	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	8 20:20 (3)	21:38	22:06	21:48	20:51	7 20:23 (3)	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	20:13 (3)	05:32	05:15	05:42	06:32	20:15 (3)	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	9 20:22 (3)	21:40	22:06	21:46	20:49	6 20:21 (3)	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	20:16 (3)	05:30	05:15	05:44	06:34	20:14 (3)	07:26	08:19	08:15	08:49
	17:08	18:06	18:57	20:52	5 20:21 (3)	21:41	22:06	21:45	20:47	5 20:19 (3)	19:34	18:26	16:34	16:27
25	08:32	07:36	06:31	06:21		05:29	05:15	05:45	06:36	20:14 (3)	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54		21:42	22:07	21:44	20:45	3 20:17 (3)	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19		05:28	05:16	05:47	06:37	20:13 (3)	07:30	07:23	08:18	08:50
	17:11	18:10	19:01	20:55		21:44	22:07	21:42	20:42	1 20:14 (3)	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17		05:27	05:16	05:48	06:39		07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57		21:45	22:06	21:41	20:40		19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14		05:26	05:17	05:50	06:41		07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59		21:46	22:06	21:39	20:38		19:25	17:18	16:31	16:29
29	08:27		07:22	06:12		05:25	05:17	05:51	06:42		07:35	07:28	08:23	08:50
	17:17		20:06	21:01		21:48	22:06	21:37	20:36		19:22	17:16	16:30	16:30
30	08:25		07:20	06:10		05:24	05:18	05:53	06:44		07:36	07:30	08:25	08:50
	17:19		20:08	21:02		21:49	22:06	21:36	20:33		19:20	17:14	16:29	16:31
31	08:24		07:17			05:23		05:55	06:46			07:32		08:50
	17:21		20:10			21:50		21:34	20:31			17:12		16:32
Potential sun hours	256	276	367	418		488	503	506	456		381	330	263	240
Total, worst case					47					45				
Sun reduction					0.35					0.30				
Oper. time red.					1.00					1.00				
Wind dir. red.					0.67					0.67				
Total reduction					0.24					0.20				
Total, real					11					9				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** ER - H148

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:51 (2)	05:19	05:57 (2)	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	06:04 (2)	22:06	06:06 (2)	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:50 (2)	05:19	05:57 (2)	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	06:04 (2)	22:05	06:07 (2)	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:50 (2)	05:20	05:57 (2)	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	06:05 (2)	22:05	06:08 (2)	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:49 (2)	05:21	05:56 (2)	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:09	21:55	06:04 (2)	22:05	06:08 (2)	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:49 (2)	05:22	05:56 (2)	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	06:04 (2)	22:04	06:09 (2)	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:50 (2)	05:22	05:56 (2)	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	06:04 (2)	22:04	06:10 (2)	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:51 (2)	05:23	05:56 (2)	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15	21:58	06:04 (2)	22:03	06:11 (2)	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:51 (2)	05:24	05:56 (2)	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	06:03 (2)	22:02	06:11 (2)	21:20	20:13	19:02	16:57	16:25
9	08:48	08:08	07:09	06:56	05:54	05:16	05:52 (2)	05:25	05:57 (2)	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	06:03 (2)	22:02	06:12 (2)	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:52 (2)	05:26	05:58 (2)	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:00	06:02 (2)	22:01	06:12 (2)	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	05:15	05:53 (2)	05:27	05:59 (2)	06:13	07:05	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	06:02 (2)	22:00	06:13 (2)	21:14	20:06	18:55	16:52	16:24
12	08:46	08:03	07:02	06:50	05:48	05:15	05:54 (2)	05:29	06:00 (2)	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	06:02 (2)	21:59	06:13 (2)	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:55 (2)	05:30	06:01 (2)	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	06:02 (2)	21:58	06:13 (2)	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:58	06:45	05:45	05:15	05:55 (2)	05:31	06:02 (2)	06:18	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	06:01 (2)	21:57	06:14 (2)	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:56 (2)	05:32	06:03 (2)	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	06:00 (2)	21:56	06:14 (2)	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:57 (2)	05:33	06:04 (2)	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	06:00 (2)	21:55	06:14 (2)	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14		05:35	06:05 (2)	06:23	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05		21:54	06:14 (2)	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14		05:36	06:07 (2)	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05		21:53	06:15 (2)	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14		05:37	06:08 (2)	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06		21:52	06:15 (2)	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14		05:39	06:09 (2)	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:51	20:45	21:35	22:06		21:51	06:14 (2)	20:56	19:44	18:35	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	06:02 (2)	05:14	05:40	06:10 (2)	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37 1	06:03 (2)	22:06	21:49	06:14 (2)	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	06:01 (2)	05:15	05:41	06:12 (2)	06:31	07:23	08:15	08:12	08:48
	17:05	18:03	18:54	20:49	21:38 3	06:04 (2)	22:06	21:48	06:14 (2)	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	06:00 (2)	05:15	05:43	06:13 (2)	06:33	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40 4	06:04 (2)	22:07	21:47	06:14 (2)	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:59 (2)	05:15	05:44		06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41 6	06:05 (2)	22:07	21:45		20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29	05:58 (2)	05:15	05:46		06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43 7	06:05 (2)	22:07	21:44		20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:57 (2)	05:16	06:00 (2)	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44 8	06:05 (2)	22:07 1	06:01 (2)	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:56 (2)	05:16	05:59 (2)	05:49	06:39	07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45 9	06:05 (2)	22:07 4	06:03 (2)	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:55 (2)	05:17	05:58 (2)	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47 10	06:05 (2)	22:07 5	06:03 (2)	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:54 (2)	05:17	05:58 (2)	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48 11	06:05 (2)	22:06 7	06:05 (2)	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:53 (2)	05:18	05:57 (2)	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49 12	06:05 (2)	22:06 8	06:05 (2)	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23	05:52 (2)			05:55	06:46		07:32		08:50
	17:21		20:10		21:50 13	06:05 (2)			21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488		503		506	456	381	330	263	240
Total, worst case					84		194		236					
Sun reduction					0.37		0.30		0.26					
Oper. time red.					1.00		1.00		1.00					
Wind dir. red.					0.63		0.63		0.63					
Total reduction					0.23		0.19		0.17					
Total, real					20		36		39					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** ES - H149

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:50	08:22	07:27		07:15	06:08	05:22	05:18	05:56	06:48		07:38	07:34	08:26
	16:34	17:23	18:16		20:11	21:04	21:51	22:06	21:32	20:29		19:18	17:10	16:28
2	08:50	08:20	07:25		07:12	06:06	05:21	05:19	05:58	06:49		07:40	07:35	08:28
	16:35	17:25	18:18		20:13	21:06	21:53	22:05	21:31	20:26		19:15	17:08	16:27
3	08:50	08:19	07:23		07:10	06:04	05:20	05:20	05:59	06:51		07:42	07:37	08:29
	16:36	17:26	18:20		20:15	21:08	21:54	22:05	21:29	20:24		19:13	17:06	16:27
4	08:50	08:17	07:20		07:08	06:03	05:19	05:21	06:01	06:53		07:43	07:39	08:30
	16:37	17:28	18:21		20:17	21:09	21:55	22:04	21:27	20:22		19:11	17:04	16:26
5	08:49	08:15	07:18		07:05	06:01	05:18	05:21	06:02	06:54		07:45	07:41	08:32
	16:38	17:30	18:23		20:19	21:11	21:56	22:04	21:25	20:19		19:08	17:02	16:26
6	08:49	08:14	07:16		07:03	05:59	05:18	05:22	06:04	06:56		07:47	07:43	08:33
	16:39	17:32	18:25		20:20	21:13	21:57	22:03	21:24	20:17		19:06	17:01	16:25
7	08:49	08:12	07:14		07:01	05:57	05:17	05:23	06:06	06:58		07:49	07:45	08:34
	16:41	17:34	18:27		20:22	21:14	21:58	22:03	21:22	20:15		19:04	16:59	16:25
8	08:48	08:10	07:11		06:58	05:55	05:17	05:24	06:07	06:59		07:50	07:47	08:36
	16:42	17:36	18:29		20:24	21:16	21:59	22:02	21:20	20:12		19:01	16:57	16:24
9	08:48	08:08	07:09		06:56	05:53	05:16	05:25	06:09	07:01		07:52	07:48	08:37
	16:43	17:38	18:31		20:26	21:18	22:00	22:01	21:18	20:10		18:59	16:55	16:24
10	08:47	08:06	07:07		06:54	05:52	05:16	05:26	06:11	07:03		07:54	07:50	08:38
	16:45	17:40	18:32		20:27	21:19	22:00	22:01	21:16	20:08		18:57	16:54	16:24
11	08:46	08:05	07:04		06:52	05:50	05:15	05:27	06:12	07:04		07:56	07:52	08:39
	16:46	17:42	18:34		20:29	21:21	22:01	22:00	21:14	20:05		18:54	16:52	16:24
12	08:46	08:03	07:02		06:49	05:48	05:15	05:28	06:14	07:06		07:57	07:54	08:40
	16:48	17:44	18:36		20:31	21:23	22:02	21:59	21:12	20:03		18:52	16:51	16:23
13	08:45	08:01	07:00		06:47	05:46	05:15	05:29	06:16	07:08		07:59	07:56	08:41
	16:49	17:46	18:38		20:33	21:24	22:02	21:58	21:10	20:01		18:50	16:49	16:23
14	08:44	07:59	06:57		06:45	05:45	05:14	05:31	06:17	07:09		08:01	07:58	08:42
	16:51	17:48	18:40		20:34	21:26	22:03	21:57	21:08	19:58		18:48	16:47	16:23
15	08:43	07:57	06:55		06:42	05:43	05:14	05:32	06:19	07:11		08:03	07:59	08:43
	16:52	17:49	18:41		20:36	21:28	22:04	21:56	21:06	19:56		18:45	16:46	16:23
16	08:43	07:55	06:53		06:40	05:42	05:14	05:33	06:21	07:13		08:04	08:01	08:44
	16:54	17:51	18:43		20:38	21:29	22:04	21:55	21:04	19:53		18:43	16:45	16:24
17	08:42	07:53	06:50		06:38	05:40	05:14	05:34	06:22	07:14		08:06	08:03	08:45
	16:56	17:53	18:45		20:40	21:31	22:05	21:54	21:02	19:51		18:41	16:43	16:24
18	08:41	07:51	06:48		06:36	05:38	05:14	05:36	06:24	07:16	19:14 (3)	08:08	08:05	08:45
	16:57	17:55	18:47		20:41	21:32	22:05	21:53	21:00	19:49	3 19:17 (3)	18:39	16:42	16:24
19	08:40	07:49	06:46	18:21 (3)	06:34	05:37	05:14	05:37	06:26	07:18	19:09 (3)	08:10	08:06	08:46
	16:59	17:57	18:49	2 18:23 (3)	20:43	21:34	22:05	21:52	20:58	19:46	10 19:19 (3)	18:37	16:40	16:24
20	08:38	07:47	06:43	18:20 (3)	06:31	05:36	05:14	05:38	06:27	07:19	19:07 (3)	08:12	08:08	08:47
	17:01	17:59	18:50	4 18:24 (3)	20:45	21:35	22:06	21:50	20:56	19:44	10 19:17 (3)	18:34	16:39	16:25
21	08:37	07:44	06:41	18:20 (3)	06:29	05:34	05:14	05:40	06:29	07:21	19:06 (3)	08:13	08:10	08:47
	17:03	18:01	18:52	6 18:26 (3)	20:47	21:37	22:06	21:49	20:53	19:41	8 19:14 (3)	18:32	16:38	16:25
22	08:36	07:42	06:38	18:21 (3)	06:27	05:33	05:14	05:41	06:31	07:23	19:05 (3)	08:15	08:12	08:48
	17:04	18:03	18:54	7 18:28 (3)	20:48	21:38	22:06	21:48	20:51	19:39	6 19:11 (3)	18:30	16:37	16:25
23	08:35	07:40	06:36	18:21 (3)	06:25	05:32	05:15	05:42	06:32	07:24	19:04 (3)	08:17	08:13	08:48
	17:06	18:05	18:56	9 18:30 (3)	20:50	21:40	22:06	21:46	20:49	19:37	5 19:09 (3)	18:28	16:36	16:26
24	08:34	07:38	06:34	18:22 (3)	06:23	05:30	05:15	05:44	06:34	07:26	19:04 (3)	08:19	08:15	08:49
	17:08	18:06	18:57	10 18:32 (3)	20:52	21:41	22:06	21:45	20:47	19:34	3 19:07 (3)	18:26	16:34	16:27
25	08:32	07:36	06:31	18:24 (3)	06:21	05:29	05:15	05:45	06:36	07:28	19:03 (3)	07:21	08:17	08:49
	17:10	18:08	18:59	6 18:30 (3)	20:54	21:42	22:07	21:44	20:45	19:32	1 19:04 (3)	17:24	16:33	16:27
26	08:31	07:34	06:29		06:19	05:28	05:16	05:47	06:37	07:30		07:23	08:18	08:50
	17:11	18:10	19:01		20:55	21:44	22:07	21:42	20:42	19:30		17:22	16:32	16:28
27	08:30	07:32	06:27		06:16	05:27	05:16	05:48	06:39	07:31		07:24	08:20	08:50
	17:13	18:12	19:03		20:57	21:45	22:06	21:41	20:40	19:27		17:20	16:31	16:29
28	08:28	07:29	06:24		06:14	05:26	05:16	05:50	06:41	07:33		07:26	08:21	08:50
	17:15	18:14	19:04		20:59	21:46	22:06	21:39	20:38	19:25		17:18	16:30	16:29
29	08:27		07:22		06:12	05:24	05:17	05:51	06:42	07:35		07:28	08:23	08:50
	17:17		20:06		21:01	21:48	22:06	21:37	20:36	19:22		17:16	16:30	16:30
30	08:25		07:20		06:10	05:23	05:18	05:53	06:44	07:36		07:30	08:25	08:50
	17:19		20:08		21:02	21:49	22:06	21:36	20:33	19:20		17:14	16:29	16:31
31	08:24		07:17			05:23		05:54	06:46			07:32		08:50
	17:21		20:10			21:50		21:34	20:31			17:12		16:32
Potential sun hours	256	276	367		418	489	503	506	456	381		330	263	240
Total, worst case				44							46			
Sun reduction				0.24							0.28			
Oper. time red.				1.00							1.00			
Wind dir. red.				0.68							0.68			
Total reduction				0.17							0.19			
Total, real				7							9			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Council - Inspection Purposes Only!
Planning Authority

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** ET - H150

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:55	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:23
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:38	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:14	05:42	06:32	07:25	08:17	08:13	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:11	18:10	19:01	20:56	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:16	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:30	16:29
29	08:27		07:22	06:12	05:24	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:22		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EU - H151

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EV - H152

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January		February		March	April	May	June	July	August	September	October	November		December
1	08:51		08:22	08:49 (2)	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34		08:26
	16:34		17:23	8 08:57 (2)	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10		16:28
2	08:50		08:21	08:47 (2)	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36		08:28
	16:35		17:25	10 08:57 (2)	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08		16:28
3	08:50		08:19	08:46 (2)	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:13 (2)	08:29
	16:36		17:27	11 08:57 (2)	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	9 08:22 (2)	16:27
4	08:50		08:17	08:44 (2)	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:12 (2)	08:31
	16:37		17:29	13 08:57 (2)	18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11	17:04	12 08:24 (2)	16:26
5	08:50		08:16	08:42 (2)	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:10 (2)	08:32
	16:38		17:30	14 08:56 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	15 08:25 (2)	16:26
6	08:49		08:14	08:41 (2)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:12 (2)	08:33
	16:40		17:32	14 08:55 (2)	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	14 08:26 (2)	16:25
7	08:49		08:12	08:42 (2)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:14 (2)	08:35
	16:41		17:34	12 08:54 (2)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	13 08:27 (2)	16:25
8	08:48		08:10	08:44 (2)	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:16 (2)	08:36
	16:42		17:36	8 08:52 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	11 08:27 (2)	16:24
9	08:48		08:09		07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:18 (2)	08:37
	16:44		17:38		18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	9 08:27 (2)	16:24
10	08:47		08:07		07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:20 (2)	08:38
	16:45		17:40		18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	7 08:27 (2)	16:24
11	08:47		08:05		07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56	07:52	08:22 (2)	08:39
	16:46		17:42		18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	5 08:27 (2)	16:24
12	08:46		08:03		07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58	07:54	08:24 (2)	08:40
	16:48		17:44		18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	3 08:27 (2)	16:24
13	08:45		08:01		07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:26 (2)	08:41
	16:49		17:46		18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	1 08:27 (2)	16:24
14	08:45		07:59		06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58		08:42
	16:51		17:48		18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48		16:24
15	08:44		07:57		06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00		08:43
	16:53		17:50		18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46		16:24
16	08:43		07:55		06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01		08:44
	16:54		17:52		18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45		16:24
17	08:42		07:53		06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03		08:45
	16:56		17:53		18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43		16:24
18	08:41		07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05		08:46
	16:58		17:55		18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42		16:24
19	08:40		07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07		08:46
	16:59		17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41		16:24
20	08:39		07:47		06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08		08:47
	17:01		17:59		18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	16:39		16:25
21	08:38		07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10		08:48
	17:03		18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38		16:25
22	08:36		07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12		08:48
	17:04		18:03		18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37		16:26
23	08:35		07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14		08:49
	17:06		18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36		16:26
24	08:34		07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15		08:49
	17:08		18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35		16:27
25	08:33		07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17		08:50
	17:10		18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34		16:27
26	08:31		07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19		08:50
	17:12		18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:33		16:28
27	08:30		07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	08:20		08:50
	17:13		18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32		16:29
28	08:28		07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22		08:50
	17:15		18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31		16:30
29	08:27	08:54 (2)			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23		08:50
	17:17	1 08:55 (2)			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30		16:30
30	08:25	08:53 (2)			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25		08:51
	17:19	3 08:56 (2)			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29		16:31
31	08:24	08:51 (2)			07:17		05:23		05:55	06:46		07:32			08:51
	17:21	6 08:57 (2)			20:10		21:51		21:34	20:31		17:12			16:32
Potential sun hours	256		276		367	418	489	503	506	456	381	330	263		240
Total, worst case	10		90										99		
Sun reduction	0.16		0.21										0.19		
Oper. time red.	1.00		1.00										1.00		
Wind dir. red.	0.65		0.65										0.65		
Total reduction	0.10		0.14										0.12		
Total, real	1		12										12		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority - Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EW - H153

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EX - H154

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February		March	April	May	June	July	August	September	October		November		December
1	08:51	08:22		07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38		07:34		08:26
	16:34	17:23		18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18		17:10	12	08:02 (2)
2	08:50	08:21		07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40		07:36		08:14 (2)
	16:35	17:25		18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16		17:08	10	08:04 (2)
3	08:50	08:19		07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42		07:38		08:14 (2)
	16:36	17:27		18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13		17:06	8	08:06 (2)
4	08:50	08:17		07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44		07:39		08:14 (2)
	16:37	17:29		18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11		17:04	6	08:08 (2)
5	08:50	08:16	08:42 (2)	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45		07:41		08:14 (2)
	16:38	17:30	2 08:44 (2)	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08		17:03	4	08:10 (2)
6	08:49	08:14	08:40 (2)	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47		07:43		08:14 (2)
	16:40	17:32	4 08:44 (2)	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06		17:01	2	08:12 (2)
7	08:49	08:12	08:38 (2)	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49		07:45		08:14 (2)
	16:41	17:34	7 08:45 (2)	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04		16:59		08:35
8	08:48	08:10	08:36 (2)	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50		07:47		16:25
	16:42	17:36	9 08:45 (2)	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01		16:57		08:36
9	08:48	08:09	08:34 (2)	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52		07:49		16:24
	16:44	17:38	11 08:45 (2)	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59		16:56		08:37
10	08:47	08:07	08:32 (2)	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54		07:50		16:24
	16:45	17:40	12 08:44 (2)	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57		16:54		08:38
11	08:47	08:05	08:30 (2)	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56		07:52		16:24
	16:46	17:42	14 08:44 (2)	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55		16:52		08:39
12	08:46	08:03	08:29 (2)	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58		07:54		16:24
	16:48	17:44	14 08:43 (2)	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52		16:51		08:40
13	08:45	08:01	08:30 (2)	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59		07:56		16:24
	16:49	17:46	11 08:41 (2)	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50		16:49		08:41
14	08:45	07:59	08:32 (2)	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01		07:58		16:24
	16:51	17:48	7 08:39 (2)	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48		16:48		08:42
15	08:44	07:57		06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03		08:00		16:24
	16:53	17:50		18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46		16:46		08:43
16	08:43	07:55		06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05		08:01		16:24
	16:54	17:52		18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43		16:45		08:44
17	08:42	07:53		06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06		08:03		16:24
	16:56	17:53		18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41		16:43		08:45
18	08:41	07:51		06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08		08:05		16:24
	16:58	17:55		18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39		16:42		08:46
19	08:40	07:49		06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10		08:07		16:24
	16:59	17:57		18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37		16:41		08:46
20	08:39	07:47		06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12		08:08		16:24
	17:01	17:59		18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35		16:39		08:47
21	08:38	07:45		06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14		08:10		16:25
	17:03	18:01		18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32		16:38		08:48
22	08:36	07:43		06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15		08:12		16:25
	17:04	18:03		18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30		16:37		08:48
23	08:35	07:40		06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17		08:14		16:26
	17:06	18:05		18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28		16:36		08:49
24	08:34	07:38		06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19		08:15		16:26
	17:08	18:07		18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26		16:35		08:49
25	08:33	07:36		06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21		08:17		16:27
	17:10	18:09		18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24		16:34		08:50
26	08:31	07:34		06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23		08:19		16:27
	17:12	18:10		19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22		16:33		08:50
27	08:30	07:32		06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25		08:20		16:28
	17:13	18:12		19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20		16:32		08:50
28	08:28	07:30		06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:01 (2)	08:22		08:50
	17:15	18:14		19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	8 08:09 (2)	16:31		16:29
29	08:27			07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	07:59 (2)	08:23		08:50
	17:17			20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	12 08:11 (2)	16:30		16:30
30	08:25			07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	07:58 (2)	08:25		08:51
	17:19			20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	15 08:13 (2)	16:29		16:31
31	08:24			07:17		05:23		05:55	06:46		07:32	08:00 (2)			08:51
	17:21			20:10		21:51		21:34	20:31		17:12	13 08:13 (2)			16:32
Potential sun hours	256	276		367	418	489	503	506	456	381	330		263		240
Total, worst case			91									48		42	
Sun reduction			0.21									0.24		0.19	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			0.66									0.66		0.66	
Total reduction			0.14									0.16		0.12	
Total, real			12									8		5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare County Planning Authority Inspection Purposes Only!

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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EY - H155

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:11	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:23
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:38	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:31	05:14	05:42	06:32	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:06	18:57	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:11	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:16	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:16	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:30	16:29
29	08:27		07:22	06:12	05:24	05:17	05:51	06:42	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:22		05:54	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** EZ - H156

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FA - H157

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:45	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:50
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:51
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:51		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FB - H158

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
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	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
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	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FC - H159

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
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	16:45	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
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	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
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	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:45	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:45
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	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	16:39	16:25
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	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:51
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:51		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FD - H160

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
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	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
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13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
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	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
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	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FE - H161

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	06:00	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:31	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	07:00	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:02	16:57	16:25
9	08:48	08:09	07:09	06:56	05:54	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	05:15	05:27	06:13	07:05	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
12	08:46	08:03	07:02	06:50	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
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	16:50	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:58	06:45	05:45	05:15	05:31	06:18	07:10	08:01	07:58	08:42
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15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:51	06:38	05:40	05:14	05:35	06:23	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:51	20:45	21:35	22:06	21:51	20:56	19:44	18:35	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
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23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
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27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	08:20	08:50
	17:14	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FF - H162

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:33	16:27
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	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FG - H163

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:23
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	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
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	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FH - H164

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
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	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:34	16:27
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	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FI - H165

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:27	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:29	18:22	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:47	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:29	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:50	17:46	18:38	20:33	21:24	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:15	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:39	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:15	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:46	06:36	07:28	07:21	08:17	08:49
	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:23	17:16	16:30	16:31
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FJ - H166

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:11	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:48	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:01	21:18	20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54	05:51	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:47	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:23
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:38	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:31	05:14	05:42	06:32	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:11	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:29	17:22	16:32	16:28
27	08:30	07:32	06:27	06:16	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:16	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:30	16:29
29	08:27		07:22	06:12	05:24	05:17	05:51	06:42	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:22		05:54	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FK - H167

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
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	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
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13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:45	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:36	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:50
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FL - H168

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
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11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
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15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
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	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
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28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FM - H169

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
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13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
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	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
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	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
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	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
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30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FN - H170

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
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	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:45	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:51	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
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	17:01	17:59	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	16:39	16:25
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23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
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	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	08:20	08:50
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28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:51
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:51		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FO - H171

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:09	05:22	05:19	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:25
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:24
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:35	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:32	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:35	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:42	18:32	16:38	16:25
22	08:36	07:42	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:33	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:34	16:27
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	17:12	18:10	19:01	20:55	21:44	22:07	21:42	20:42	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
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29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FP - H172

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:40	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:51	20:56	19:44	18:34	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
22	08:36	07:43	06:39	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:42	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:34	16:27
25	08:33	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FQ - H173

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:09	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:16	17:08	16:28
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:44	07:39	08:31
	16:37	17:29	18:22	20:17	21:10	21:55	22:05	21:28	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:19	05:22	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:21	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:08	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:09	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:44	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
10	08:47	08:07	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:33	20:28	21:20	22:01	22:01	21:16	20:08	18:57	16:54	16:24
11	08:47	08:05	07:05	06:52	05:50	05:15	05:27	06:12	07:05	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:06	18:55	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:58	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:47	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:25	22:03	21:58	21:10	20:01	18:50	16:49	16:24
14	08:45	07:59	06:58	06:45	05:45	05:14	05:31	06:17	07:10	08:01	07:58	08:42
	16:51	17:48	18:40	20:35	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:24
15	08:44	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	08:00	08:43
	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:46	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:52	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:51	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:58	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:32	05:36	05:14	05:38	06:28	07:20	08:12	08:08	08:47
	17:01	17:59	18:51	20:45	21:36	22:06	21:51	20:56	19:44	18:35	16:39	16:25
21	08:38	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:14	08:10	08:48
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
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	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
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	17:10	18:09	18:59	20:54	21:43	22:07	21:44	20:45	19:32	17:24	16:34	16:27
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	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:33	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:49	06:39	07:31	07:25	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:07	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:13	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:11	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:51
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:51		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FR - H174

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FS - H175

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:11	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:48	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:55	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:57	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:47	16:23
15	08:43	07:57	06:55	06:42	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:52	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:55	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:42	06:32	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:06	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:34	16:27
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
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	17:11	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:29	17:22	16:32	16:28
27	08:30	07:32	06:27	06:16	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:24	05:17	05:51	06:42	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FT - H176

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
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19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
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	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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+353719161416
Kathryn Feeney / kfeeney@jodireland.com

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FU - H177

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
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5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
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	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
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11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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	16:52	17:49	18:41	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:23
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	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
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30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:22		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FV - H178

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:21	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:02	16:26
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	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:49	08:37
	16:43	17:38	18:31	20:26	21:18	22:00	22:02	21:18	20:10	18:59	16:56	16:24
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	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
13	08:45	08:01	07:00	06:47	05:46	05:15	05:29	06:16	07:08	07:59	07:56	08:41
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	17:04	18:03	18:54	20:49	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
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	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
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	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:23	05:18	05:53	06:44	07:37	07:30	08:25	08:50
	17:19		20:08	21:03	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FW - H179

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:51	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:52	22:06	21:33	20:29	19:18	17:10	16:28
2	08:50	08:21	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:36	08:28
	16:35	17:25	18:18	20:13	21:06	21:53	22:06	21:31	20:27	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:38	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:21	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:31
	16:37	17:28	18:22	20:17	21:09	21:55	22:05	21:27	20:22	19:11	17:04	16:26
5	08:50	08:16	07:18	07:06	06:01	05:18	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:26	20:20	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:04	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:35
	16:41	17:34	18:27	20:22	21:15	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:13	19:01	16:57	16:24
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11	08:47	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
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	16:53	17:50	18:42	20:36	21:28	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:05	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:54	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:15	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:46
	16:57	17:55	18:47	20:42	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:07	08:46
	16:59	17:57	18:49	20:43	21:34	22:06	21:52	20:58	19:46	18:37	16:41	16:24
20	08:39	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:20	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:36	22:06	21:51	20:56	19:44	18:34	16:39	16:25
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	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:54	19:42	18:32	16:38	16:25
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	17:04	18:03	18:54	20:49	21:38	22:07	21:48	20:51	19:39	18:30	16:37	16:25
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:14	08:49
	17:06	18:05	18:56	20:50	21:40	22:07	21:47	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:58	20:52	21:41	22:07	21:45	20:47	19:34	18:26	16:35	16:27
25	08:33	07:36	06:32	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:50
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26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:19	08:50
	17:12	18:10	19:01	20:56	21:44	22:07	21:42	20:43	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:25	08:20	08:50
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28	08:28	07:30	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:22	08:50
	17:15	18:14	19:05	20:59	21:47	22:07	21:39	20:38	19:25	17:18	16:31	16:29
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:38	20:36	19:23	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:37	07:30	08:25	08:51
	17:19		20:08	21:03	21:49	22:06	21:36	20:34	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:51
	17:21		20:10		21:51		21:34	20:31		17:12		16:32
Potential sun hours	255	276	367	418	489	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
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Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FX - H180

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
13	08:45	08:01	07:00	06:47	05:46	05:15	05:30	06:16	07:08	07:59	07:56	08:41
	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:57	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:25	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
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	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:33	16:27
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30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FY - H181

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
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	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:57	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:23
16	08:42	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
17	08:42	07:53	06:50	06:38	05:40	05:14	05:34	06:22	07:14	08:06	08:03	08:45
	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:26
23	08:35	07:40	06:36	06:25	05:32	05:15	05:43	06:32	07:24	08:17	08:13	08:48
	17:06	18:05	18:56	20:50	21:40	22:06	21:46	20:49	19:37	18:28	16:36	16:26
24	08:34	07:38	06:34	06:23	05:30	05:15	05:44	06:34	07:26	08:19	08:15	08:49
	17:08	18:07	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:35	16:27
25	08:32	07:36	06:31	06:21	05:29	05:15	05:45	06:36	07:28	07:21	08:17	08:49
	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:33	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:37	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
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	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
28	08:28	07:29	06:24	06:14	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:51	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Clare Planning Authority Inspection Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com

Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025

SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** FZ - H182

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:12	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:13	06:07	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:05	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:27	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:06	06:01	05:19	05:21	06:03	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:03	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:40	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:49	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:59	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:44	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:56	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:56	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
12	08:46	08:03	07:02	06:49	05:48	05:15	05:28	06:14	07:06	07:57	07:54	08:40
	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:24
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
14	08:44	07:59	06:57	06:45	05:45	05:14	05:31	06:17	07:09	08:01	07:58	08:42
	16:51	17:48	18:40	20:34	21:26	22:03	21:57	21:08	19:58	18:48	16:48	16:23
15	08:43	07:57	06:55	06:43	05:43	05:14	05:32	06:19	07:11	08:03	07:59	08:43
	16:53	17:50	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:24
16	08:43	07:55	06:53	06:40	05:42	05:14	05:33	06:21	07:13	08:04	08:01	08:44
	16:54	17:51	18:43	20:38	21:29	22:04	21:55	21:04	19:53	18:43	16:45	16:24
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	16:56	17:53	18:45	20:40	21:31	22:05	21:54	21:02	19:51	18:41	16:43	16:24
18	08:41	07:51	06:48	06:36	05:39	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:58	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:41	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:56	19:44	18:34	16:39	16:25
21	08:37	07:45	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
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	17:10	18:08	18:59	20:54	21:42	22:06	21:44	20:45	19:32	17:24	16:34	16:27
26	08:31	07:34	06:29	06:19	05:28	05:16	05:47	06:38	07:30	07:23	08:18	08:50
	17:12	18:10	19:01	20:55	21:44	22:06	21:42	20:42	19:30	17:22	16:32	16:28
27	08:30	07:32	06:27	06:17	05:27	05:16	05:48	06:39	07:31	07:24	08:20	08:50
	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:32	16:29
28	08:28	07:29	06:24	06:15	05:26	05:17	05:50	06:41	07:33	07:26	08:21	08:50
	17:15	18:14	19:04	20:59	21:46	22:06	21:39	20:38	19:25	17:18	16:31	16:30
29	08:27		07:22	06:12	05:25	05:17	05:52	06:43	07:35	07:28	08:23	08:50
	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
30	08:25		07:20	06:10	05:24	05:18	05:53	06:44	07:36	07:30	08:25	08:50
	17:19		20:08	21:02	21:49	22:06	21:36	20:33	19:20	17:14	16:29	16:31
31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	264	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
16/12/2024 16:00/4.0.552

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SHADOW - Calendar

Calculation: 6778 Moanmore Lower Only Worst Case **Shadow receptor:** GA - H183

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:50	08:22	07:27	07:15	06:08	05:22	05:18	05:56	06:48	07:38	07:34	08:26
	16:34	17:23	18:16	20:11	21:04	21:51	22:06	21:32	20:29	19:18	17:10	16:28
2	08:50	08:20	07:25	07:12	06:06	05:21	05:19	05:58	06:49	07:40	07:35	08:27
	16:35	17:25	18:18	20:13	21:06	21:53	22:05	21:31	20:26	19:15	17:08	16:27
3	08:50	08:19	07:23	07:10	06:04	05:20	05:20	05:59	06:51	07:42	07:37	08:29
	16:36	17:26	18:20	20:15	21:08	21:54	22:05	21:29	20:24	19:13	17:06	16:27
4	08:50	08:17	07:20	07:08	06:03	05:19	05:21	06:01	06:53	07:43	07:39	08:30
	16:37	17:28	18:21	20:17	21:09	21:55	22:04	21:27	20:22	19:11	17:04	16:26
5	08:49	08:15	07:18	07:05	06:01	05:18	05:21	06:02	06:54	07:45	07:41	08:32
	16:38	17:30	18:23	20:19	21:11	21:56	22:04	21:25	20:19	19:08	17:02	16:26
6	08:49	08:14	07:16	07:03	05:59	05:18	05:22	06:04	06:56	07:47	07:43	08:33
	16:39	17:32	18:25	20:20	21:13	21:57	22:03	21:24	20:17	19:06	17:01	16:25
7	08:49	08:12	07:14	07:01	05:57	05:17	05:23	06:06	06:58	07:48	07:45	08:34
	16:41	17:34	18:27	20:22	21:14	21:58	22:03	21:22	20:15	19:04	16:59	16:25
8	08:48	08:10	07:11	06:58	05:55	05:17	05:24	06:07	06:59	07:50	07:47	08:36
	16:42	17:36	18:29	20:24	21:16	21:59	22:02	21:20	20:12	19:01	16:57	16:24
9	08:48	08:08	07:09	06:56	05:53	05:16	05:25	06:09	07:01	07:52	07:48	08:37
	16:43	17:38	18:31	20:26	21:18	21:59	22:01	21:18	20:10	18:59	16:55	16:24
10	08:47	08:06	07:07	06:54	05:52	05:16	05:26	06:11	07:03	07:54	07:50	08:38
	16:45	17:40	18:32	20:27	21:19	22:00	22:01	21:16	20:08	18:57	16:54	16:24
11	08:46	08:05	07:04	06:52	05:50	05:15	05:27	06:12	07:04	07:55	07:52	08:39
	16:46	17:42	18:34	20:29	21:21	22:01	22:00	21:14	20:05	18:54	16:52	16:24
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	16:48	17:44	18:36	20:31	21:23	22:02	21:59	21:12	20:03	18:52	16:51	16:23
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	16:49	17:46	18:38	20:33	21:24	22:02	21:58	21:10	20:01	18:50	16:49	16:23
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	16:52	17:49	18:41	20:36	21:27	22:04	21:56	21:06	19:56	18:45	16:46	16:23
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18	08:41	07:51	06:48	06:36	05:38	05:14	05:36	06:24	07:16	08:08	08:05	08:45
	16:57	17:55	18:47	20:41	21:32	22:05	21:53	21:00	19:49	18:39	16:42	16:24
19	08:40	07:49	06:46	06:34	05:37	05:14	05:37	06:26	07:18	08:10	08:06	08:46
	16:59	17:57	18:49	20:43	21:34	22:05	21:52	20:58	19:46	18:37	16:40	16:24
20	08:38	07:47	06:43	06:31	05:36	05:14	05:38	06:27	07:19	08:12	08:08	08:47
	17:01	17:59	18:50	20:45	21:35	22:06	21:50	20:55	19:44	18:34	16:39	16:25
21	08:37	07:44	06:41	06:29	05:34	05:14	05:40	06:29	07:21	08:13	08:10	08:47
	17:03	18:01	18:52	20:47	21:37	22:06	21:49	20:53	19:41	18:32	16:38	16:25
22	08:36	07:42	06:38	06:27	05:33	05:14	05:41	06:31	07:23	08:15	08:12	08:48
	17:04	18:03	18:54	20:48	21:38	22:06	21:48	20:51	19:39	18:30	16:37	16:25
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	17:08	18:06	18:57	20:52	21:41	22:06	21:45	20:47	19:34	18:26	16:34	16:27
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	17:10	18:08	18:59	20:54	21:42	22:07	21:44	20:45	19:32	17:24	16:33	16:27
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	17:13	18:12	19:03	20:57	21:45	22:06	21:41	20:40	19:27	17:20	16:31	16:29
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	17:17		20:06	21:01	21:48	22:06	21:37	20:36	19:22	17:16	16:30	16:30
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31	08:24		07:17		05:23		05:55	06:46		07:32		08:50
	17:21		20:10		21:50		21:34	20:31		17:12		16:32
Potential sun hours	256	276	367	418	488	503	506	456	381	330	263	240
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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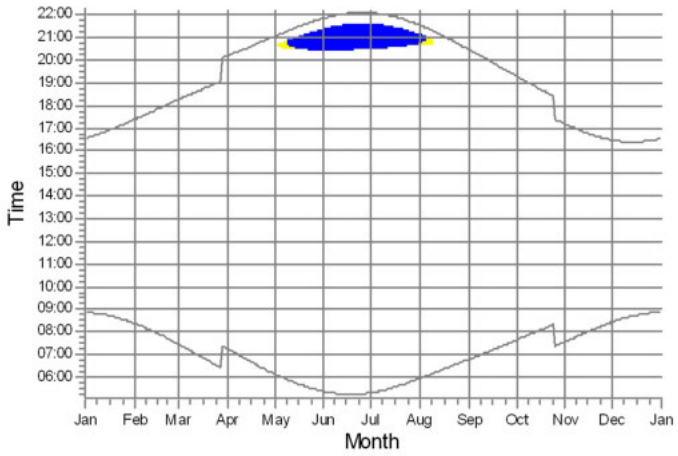
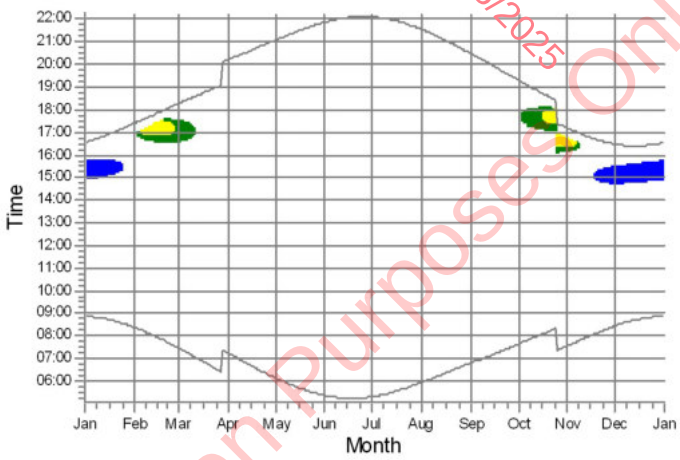
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

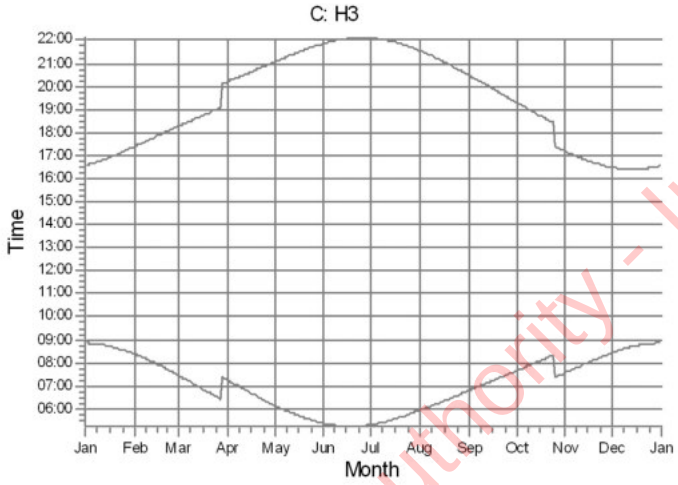
A: H1



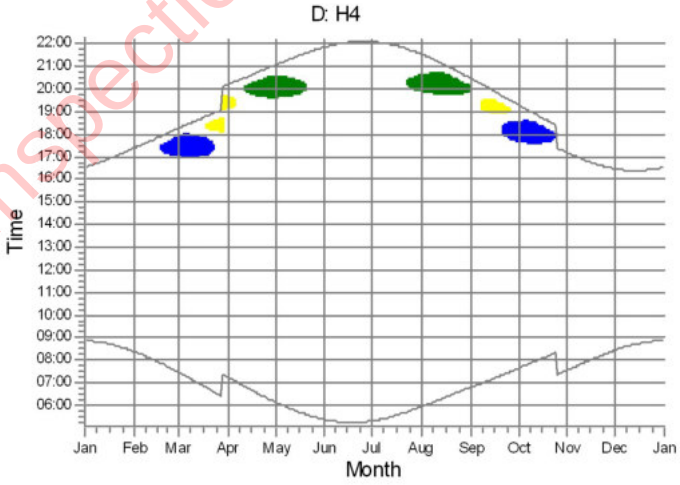
B: H2



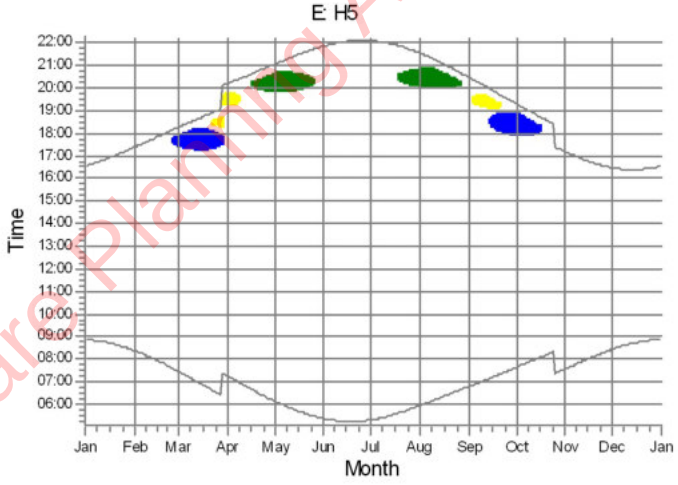
C: H3



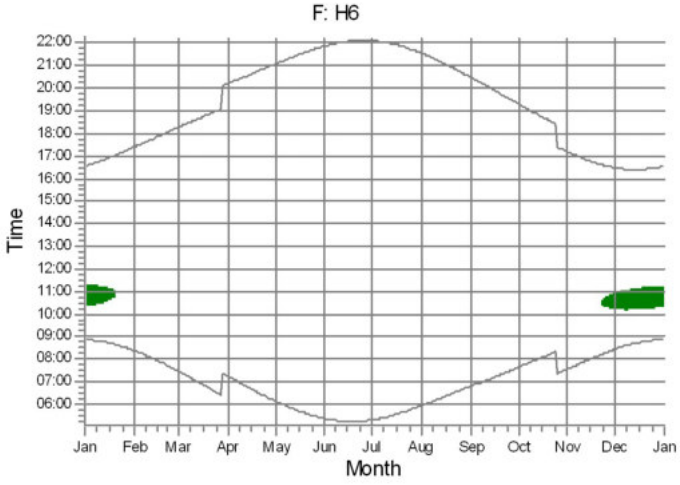
D: H4



E: H5



F: H6



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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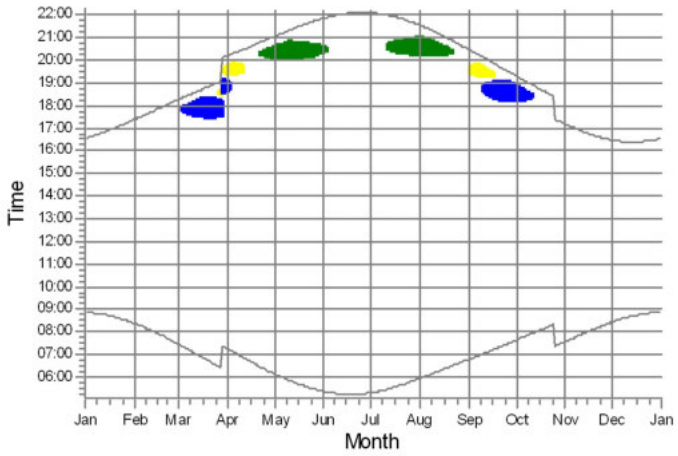
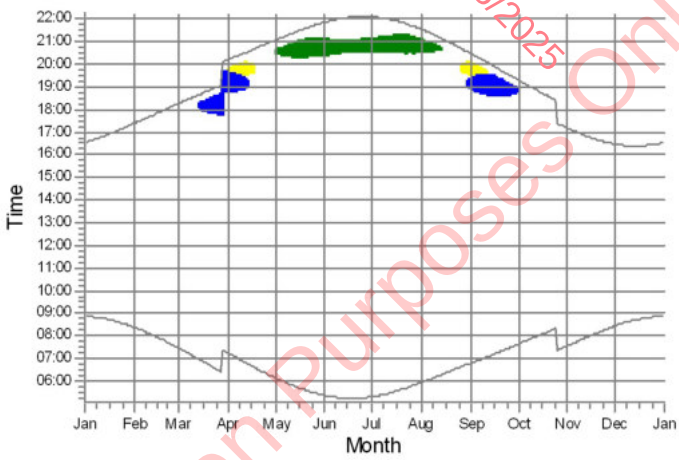
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

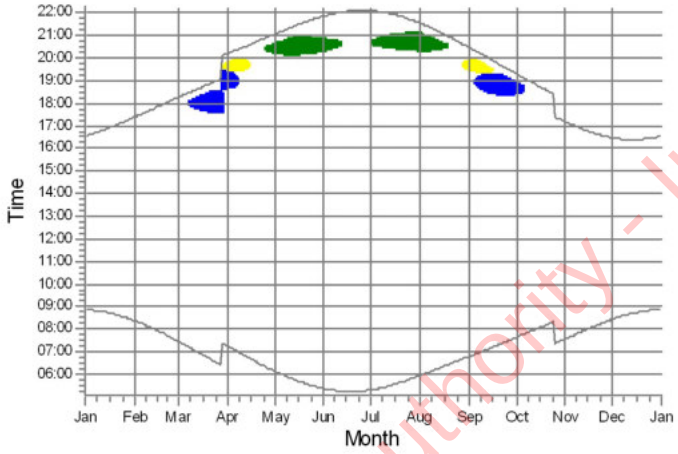
G: H7



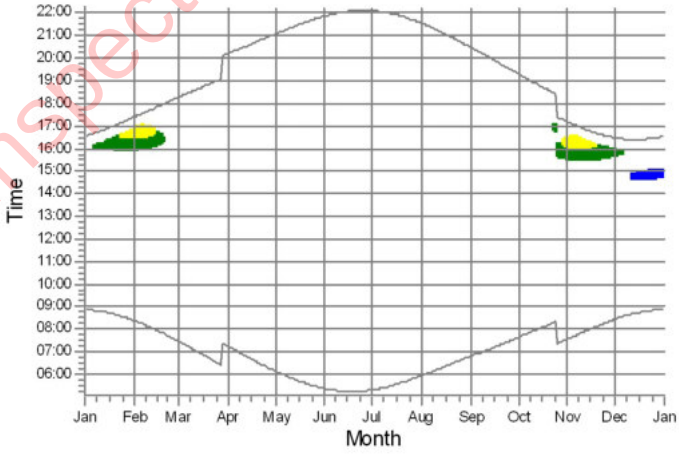
H: H8



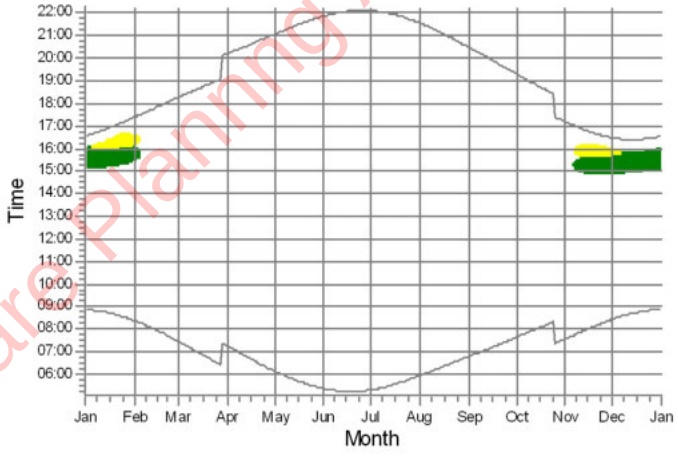
I: H9



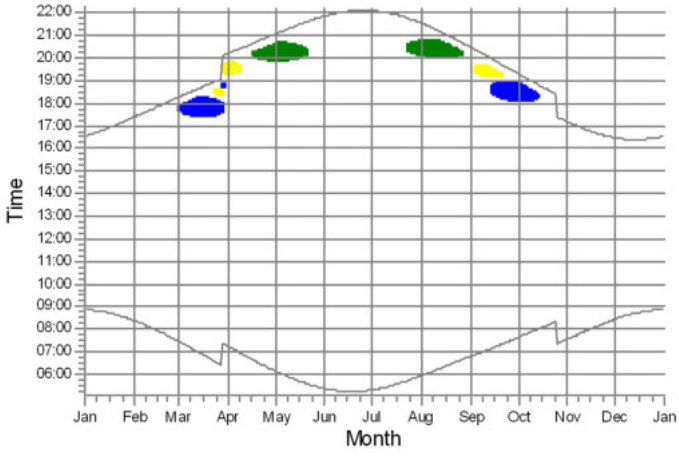
J: H10



K: H11



L: H12



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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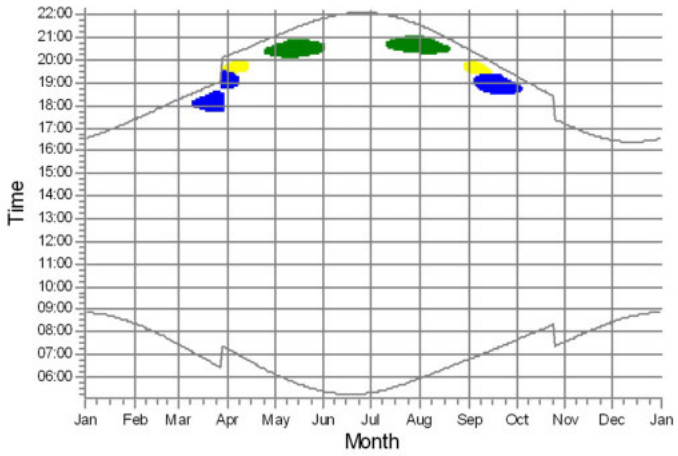
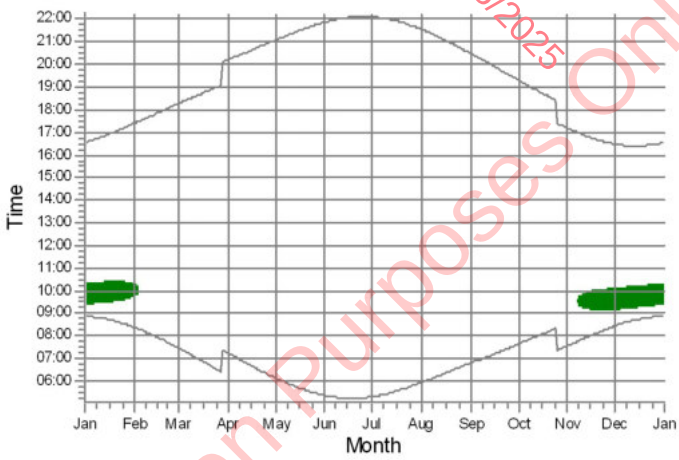
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

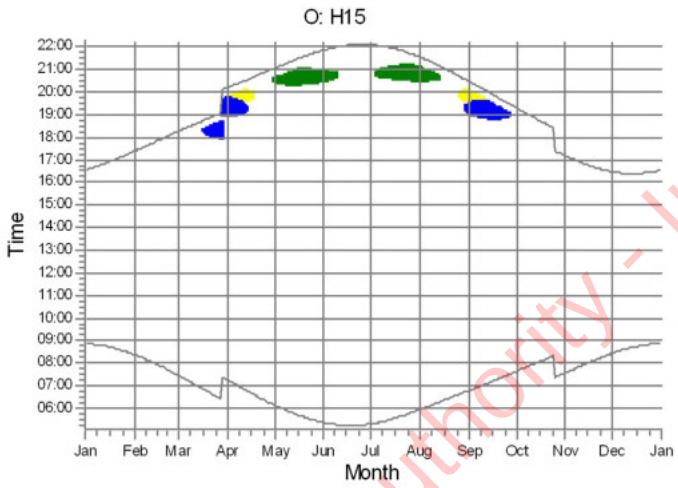
M: H13



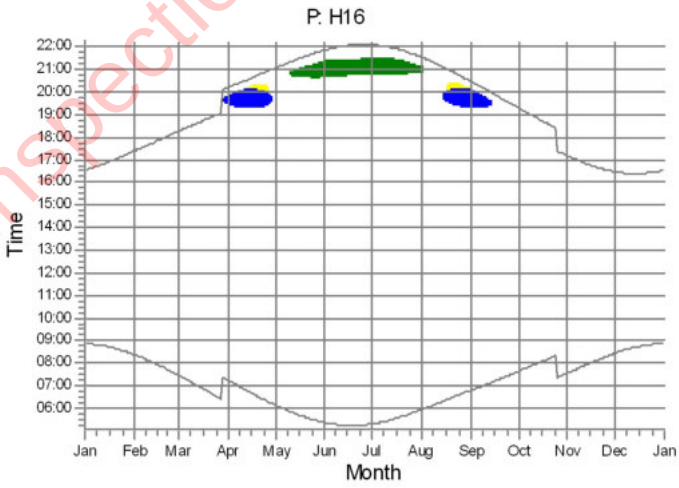
N: H14



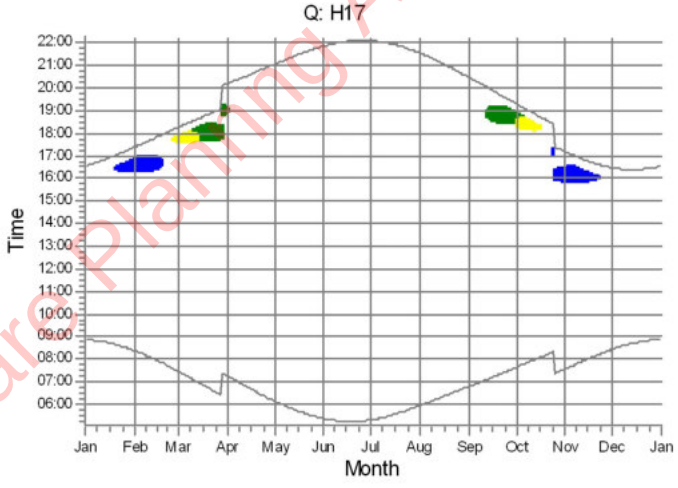
O: H15



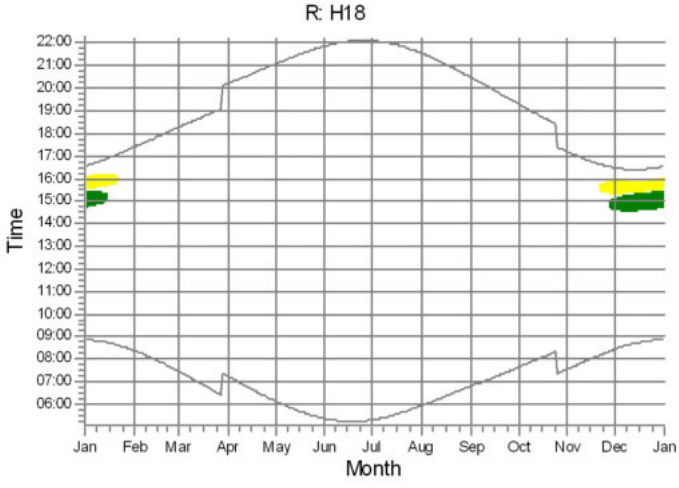
P: H16



Q: H17



R: H18



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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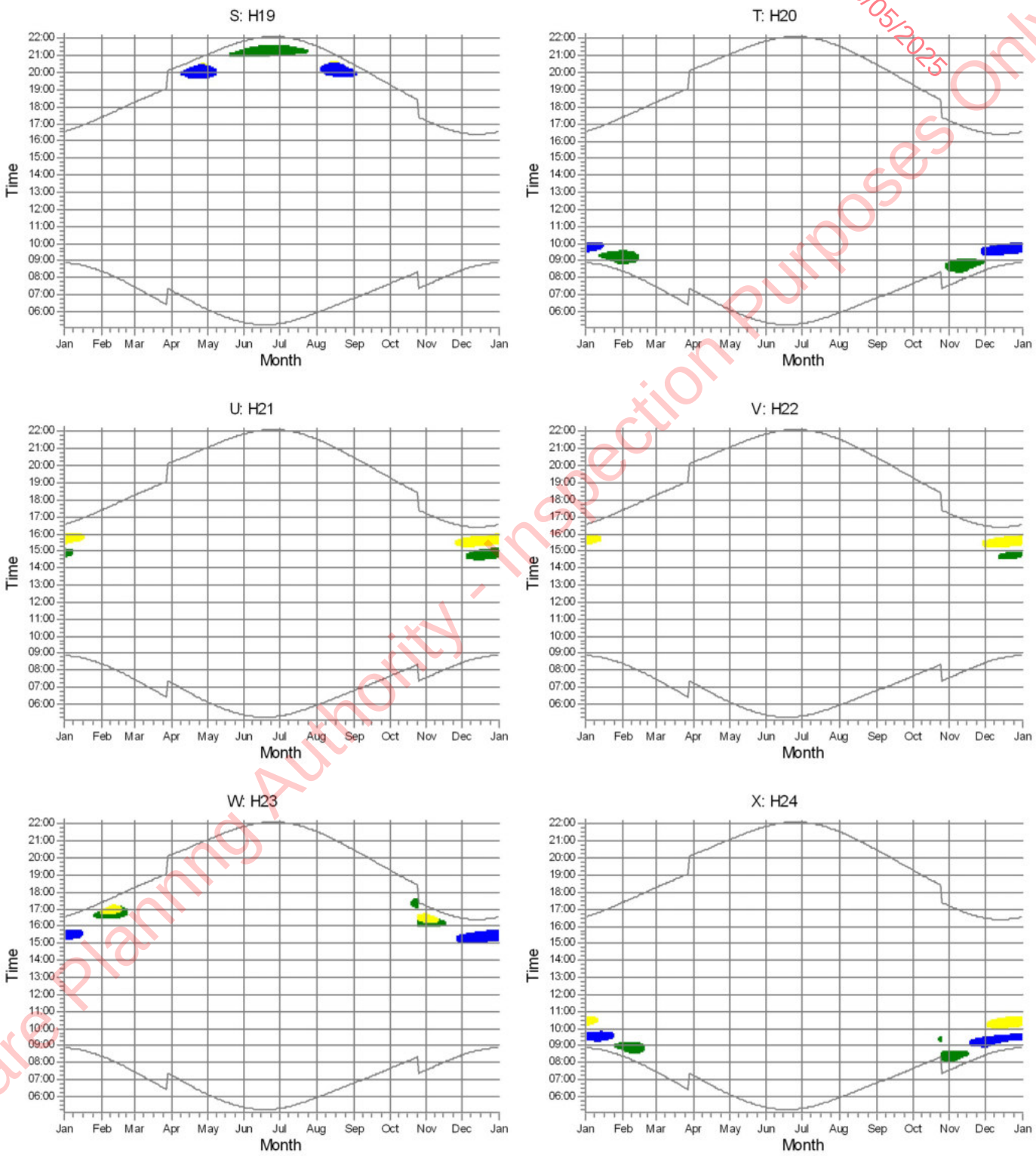
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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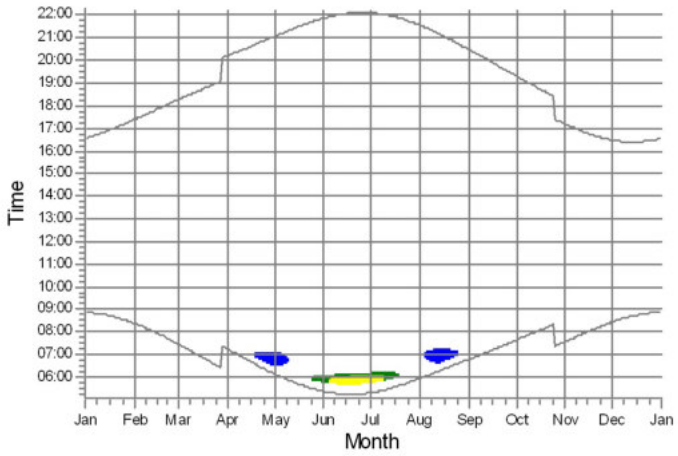
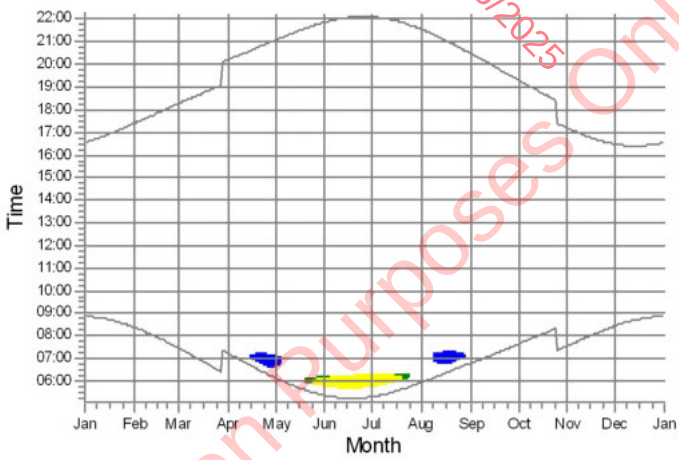
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

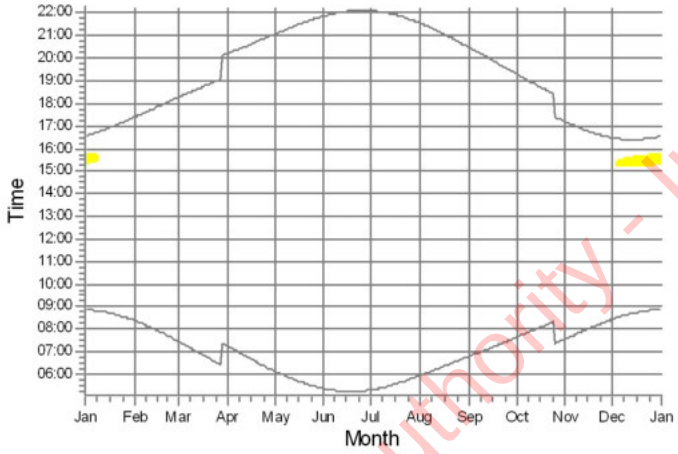
Y: H25



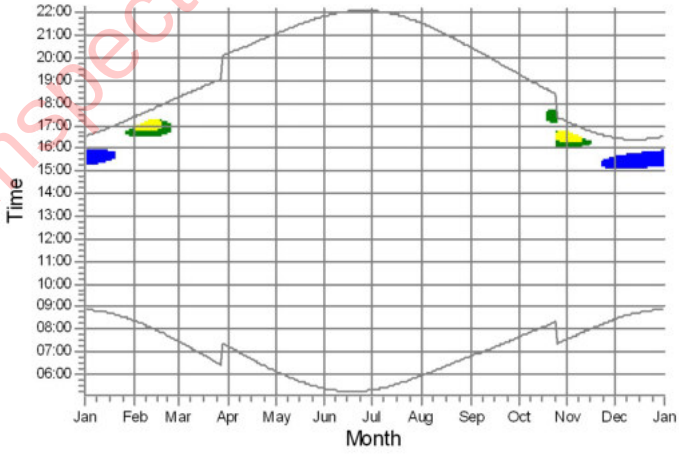
Z: H26



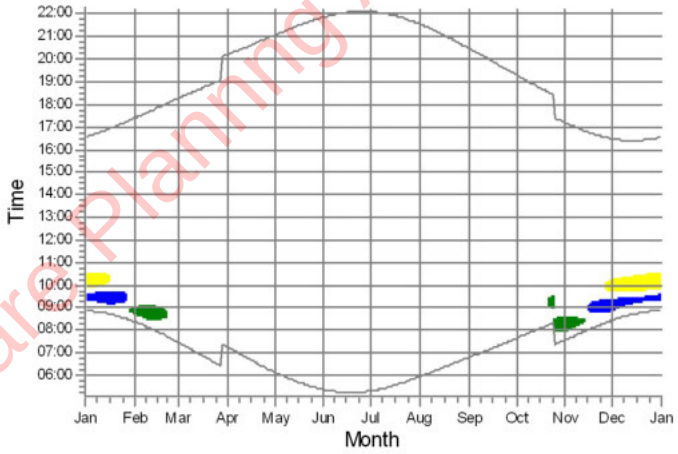
AA: H27



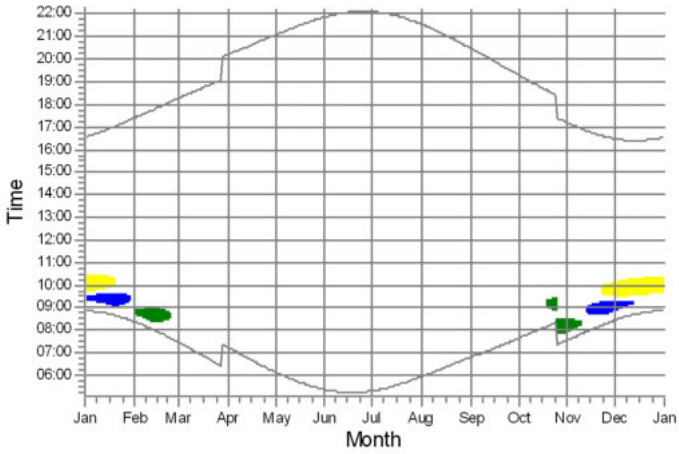
AB: H28



AC: H29



AD: H30



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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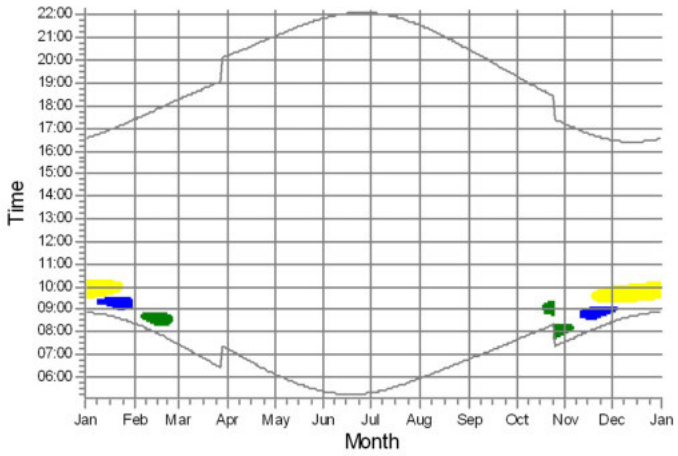
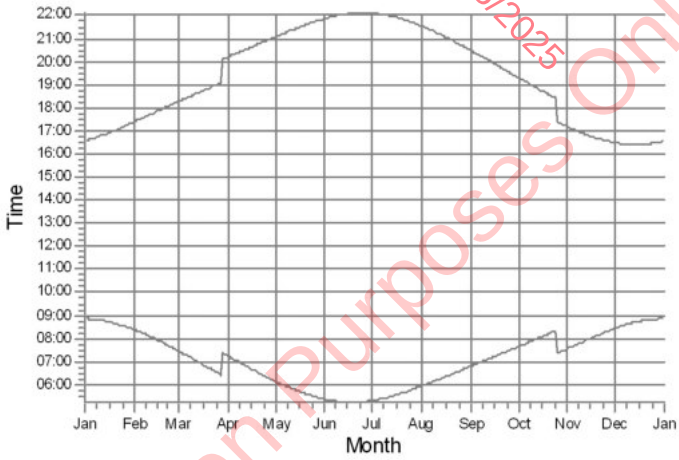
Calculation: 6778 Moanmore Lower Only Worst Case

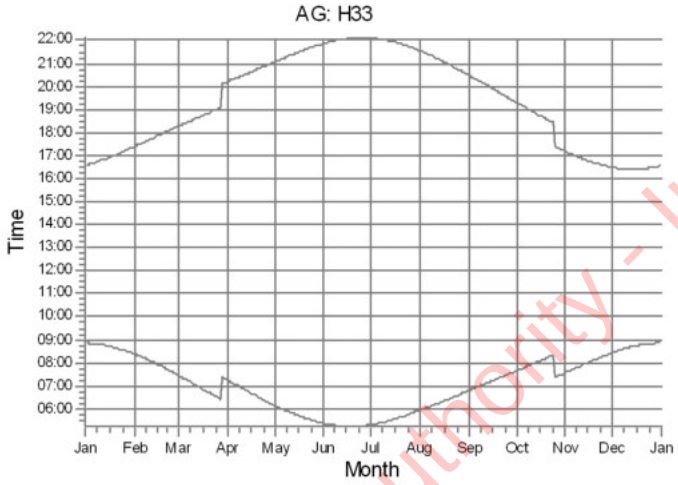
AE: H31



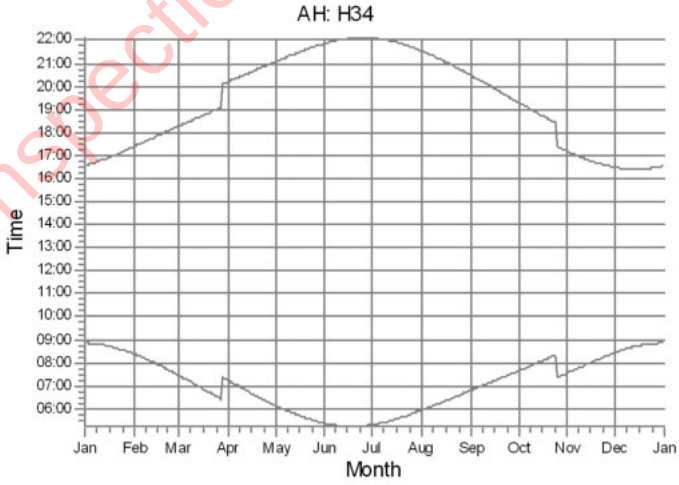
AF: H32



AG: H33



AH: H34



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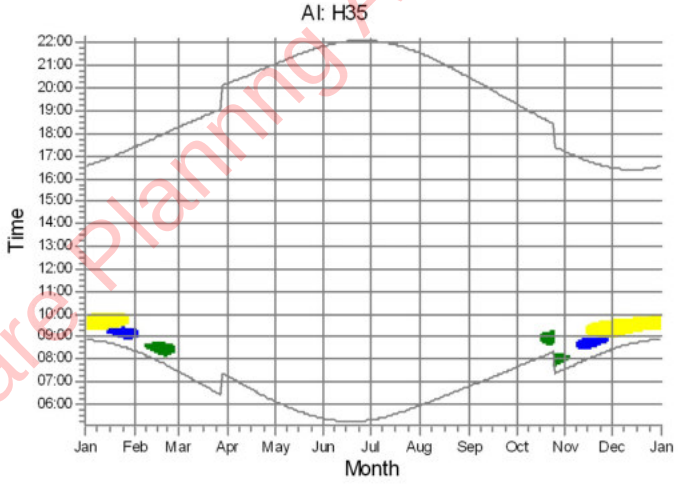
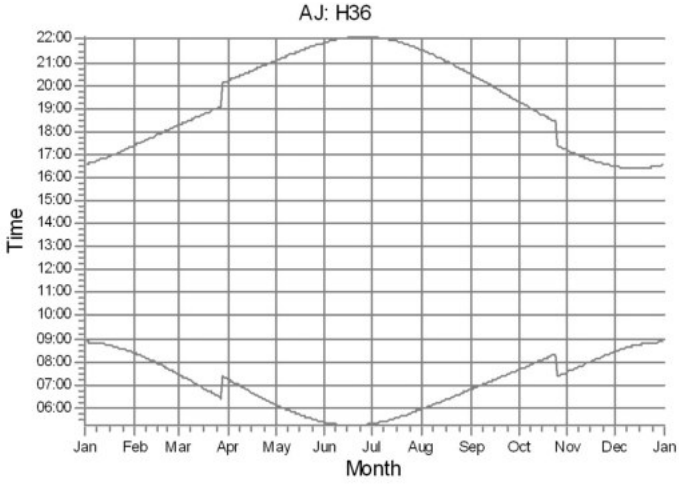


AJ: H36



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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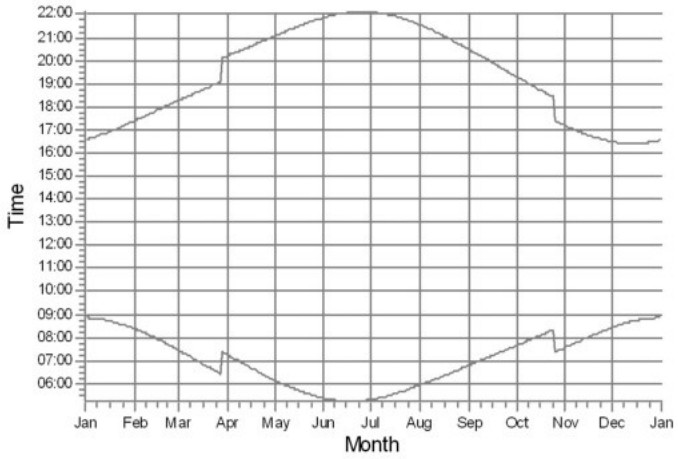
Calculation: 6778 Moanmore Lower Only Worst Case

AK: H37



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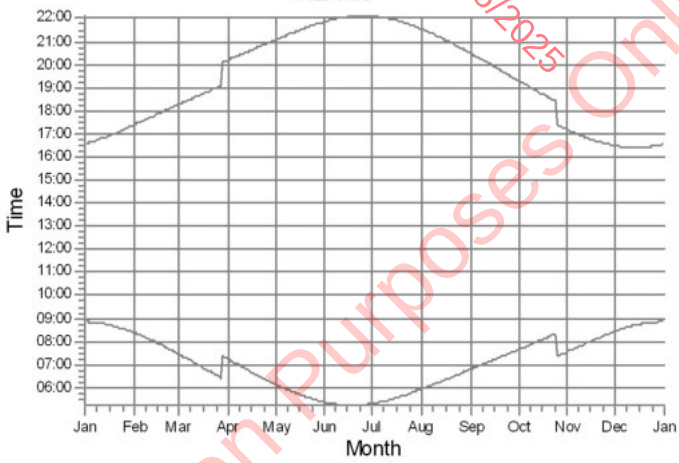

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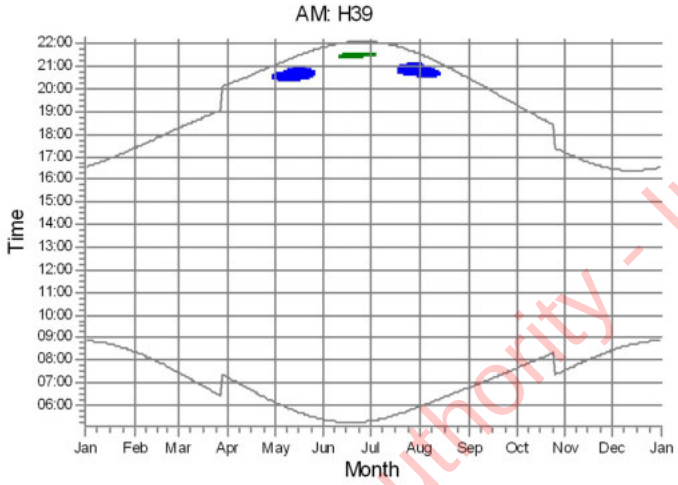

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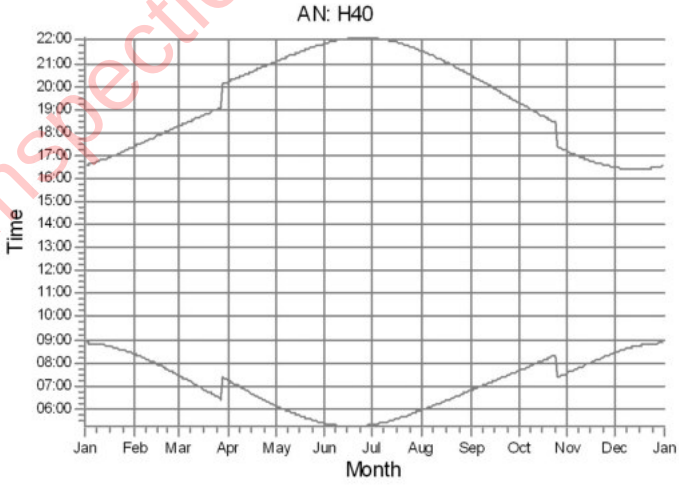
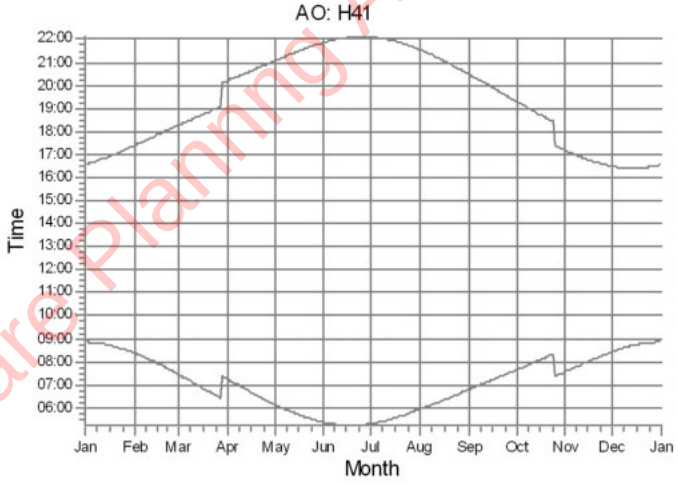


AO: H41



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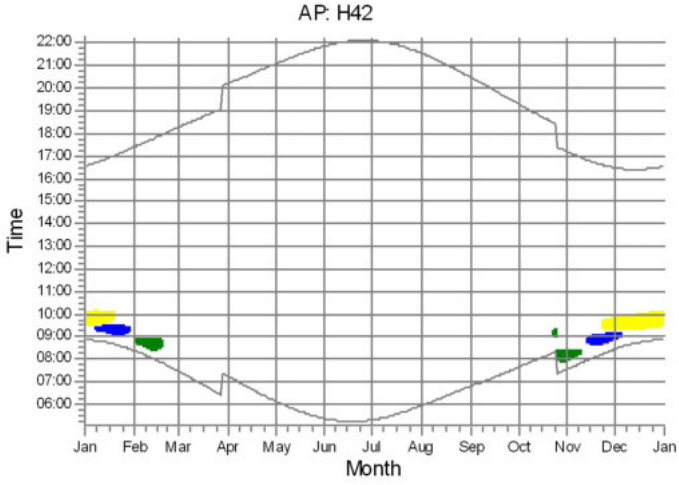

WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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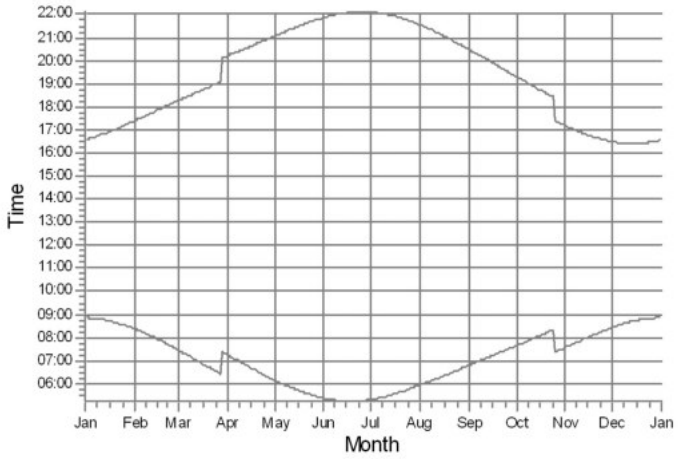
Calculation: 6778 Moanmore Lower Only Worst Case

AQ: H43



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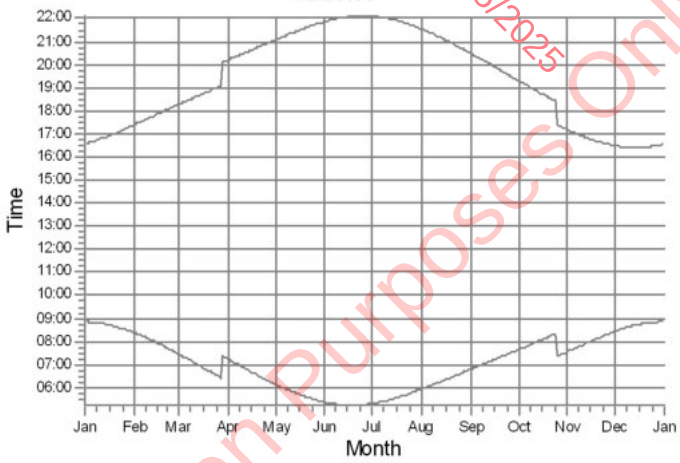
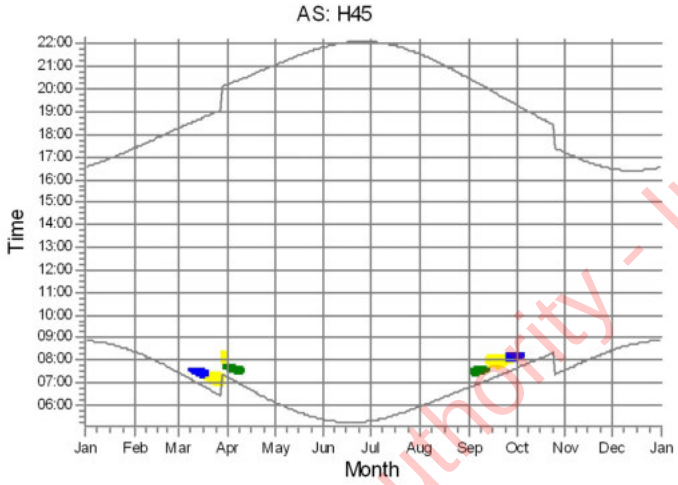
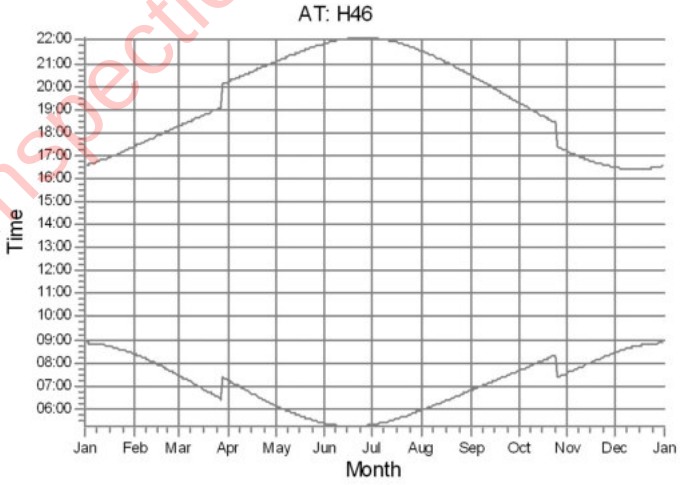


AS: H45



AT: H46



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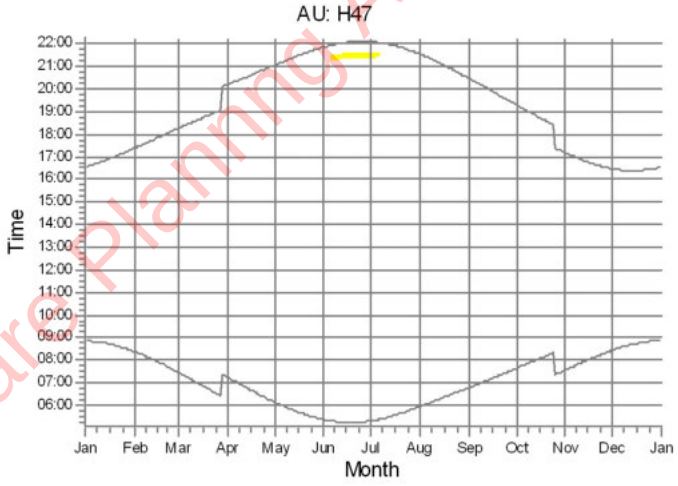
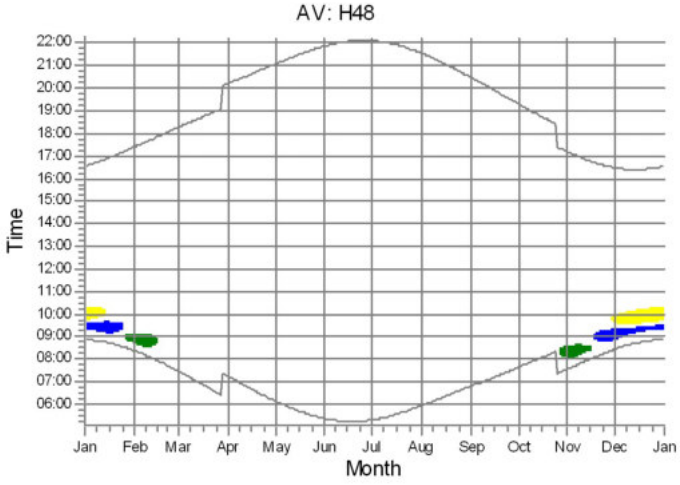


AV: H48



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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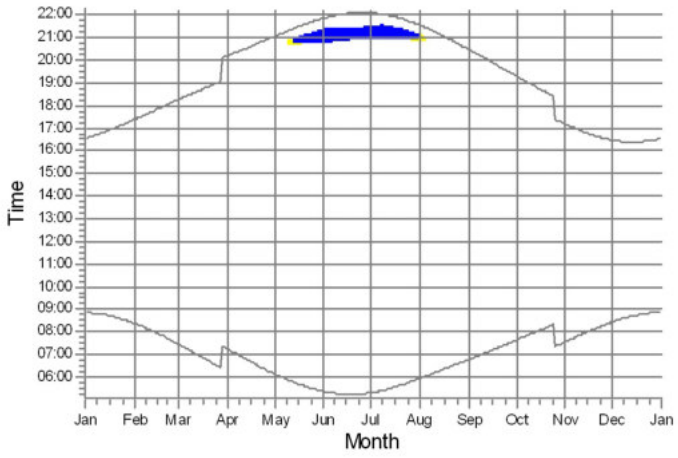
AW: H49



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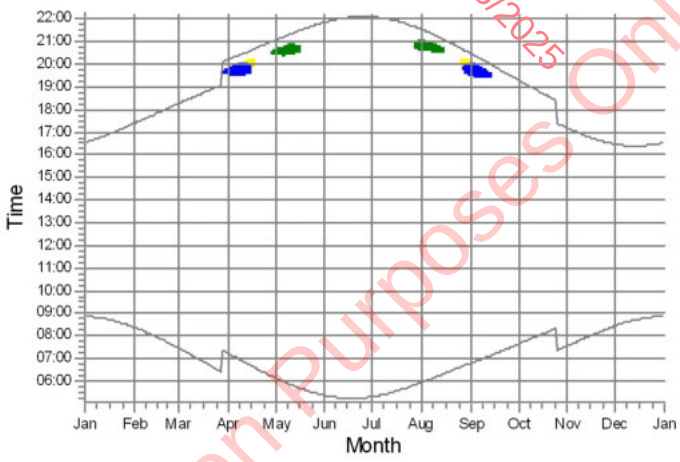
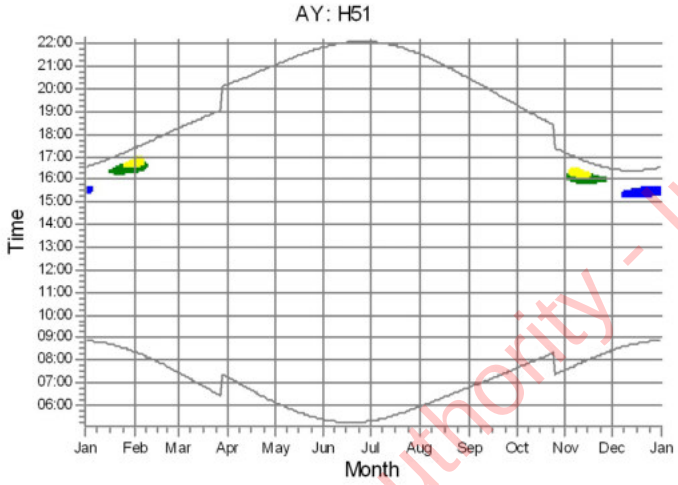
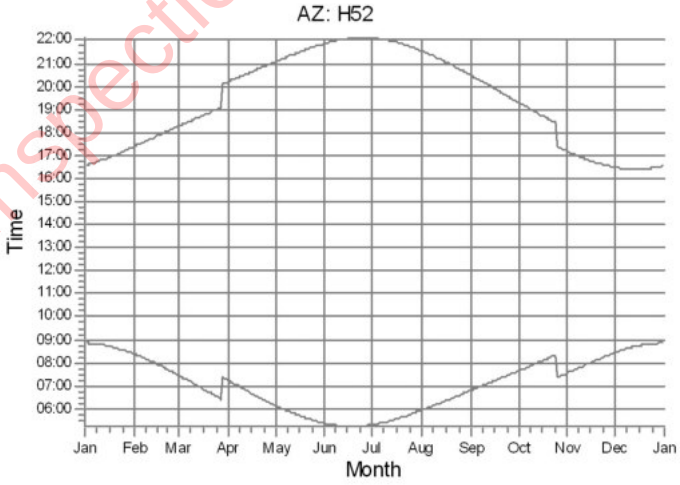


AY: H51



AZ: H52



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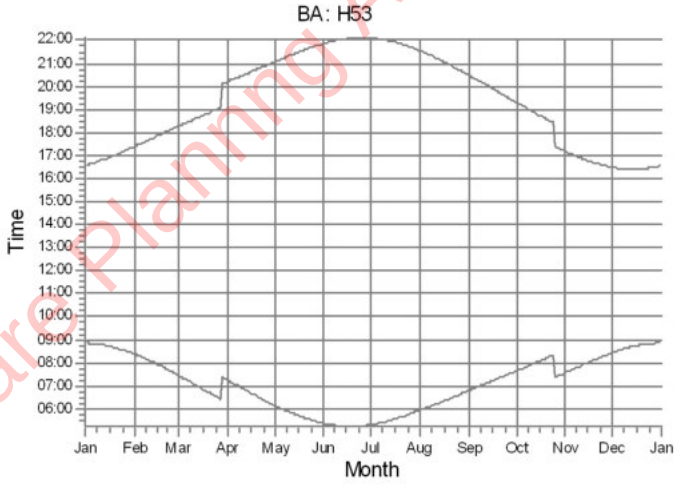
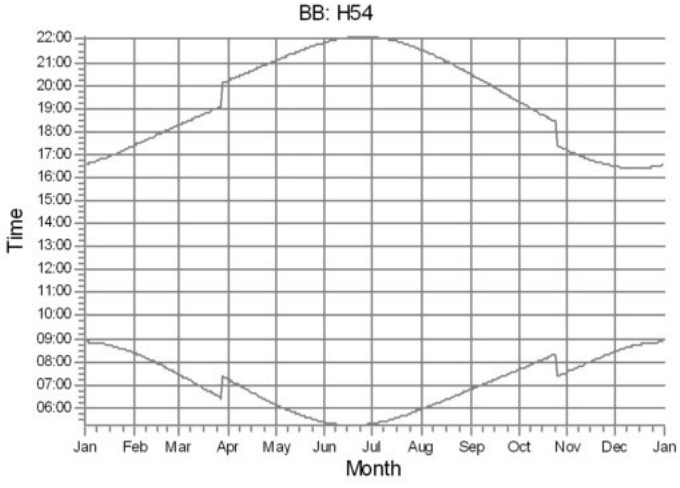


BB: H54



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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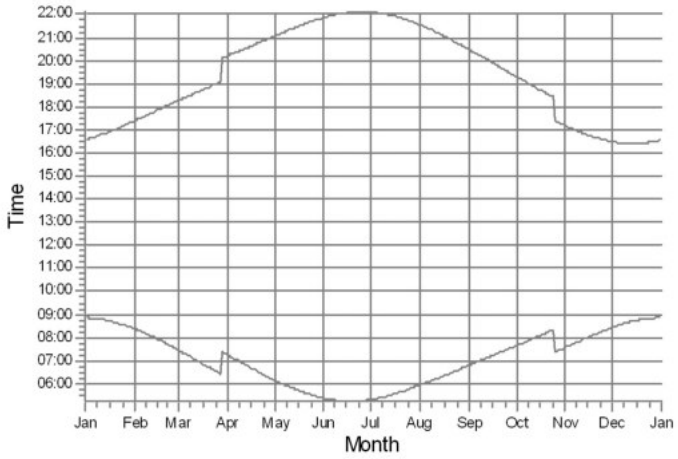
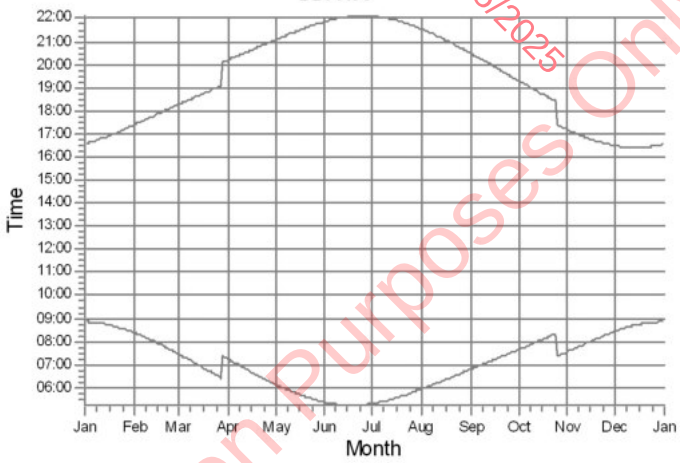
Calculation: 6778 Moanmore Lower Only Worst Case

BC: H55



BD: H56



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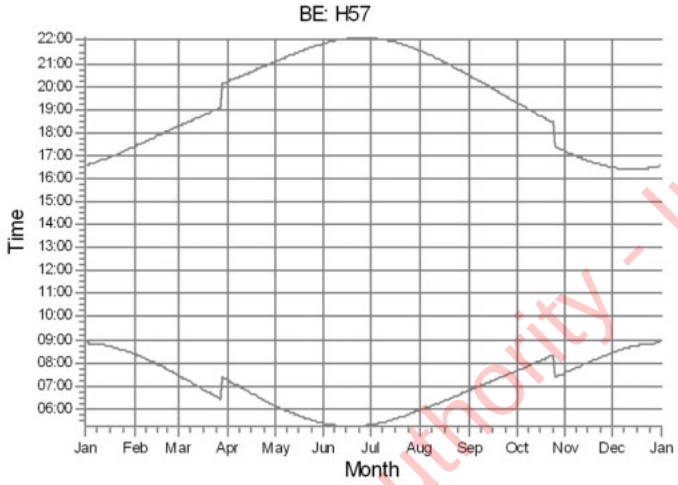

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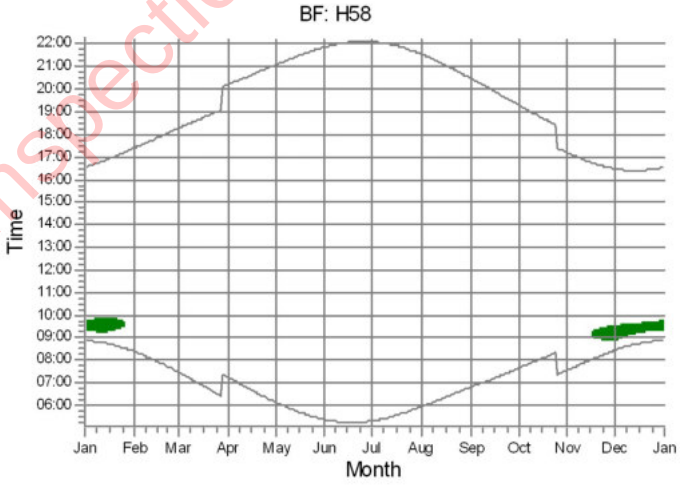
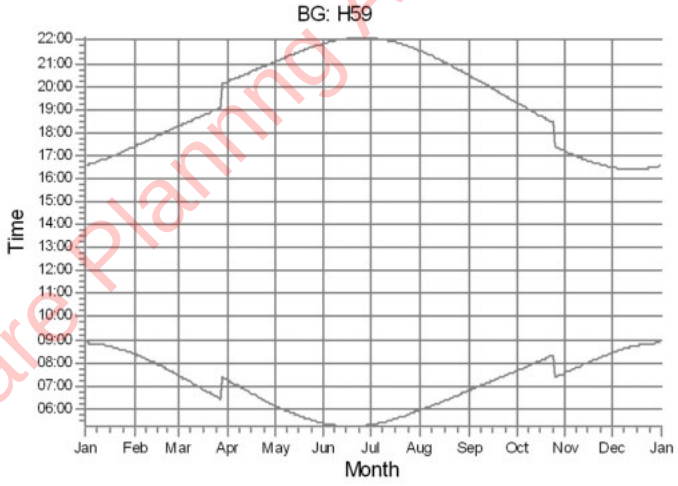
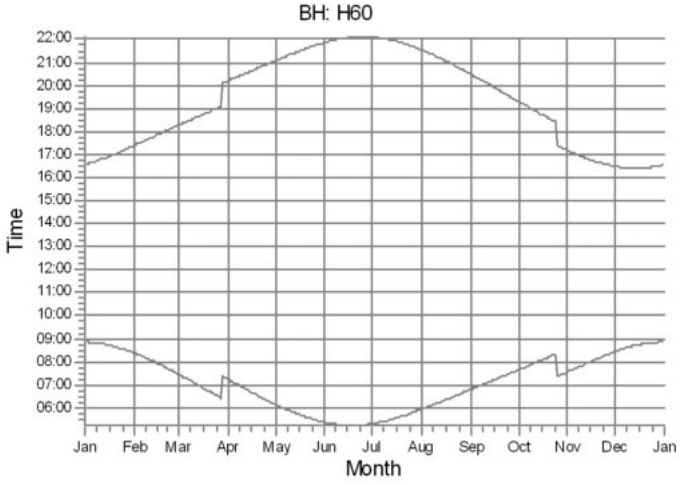


BG: H59



BH: H60



WTGs

1: Moanmore Lower T1

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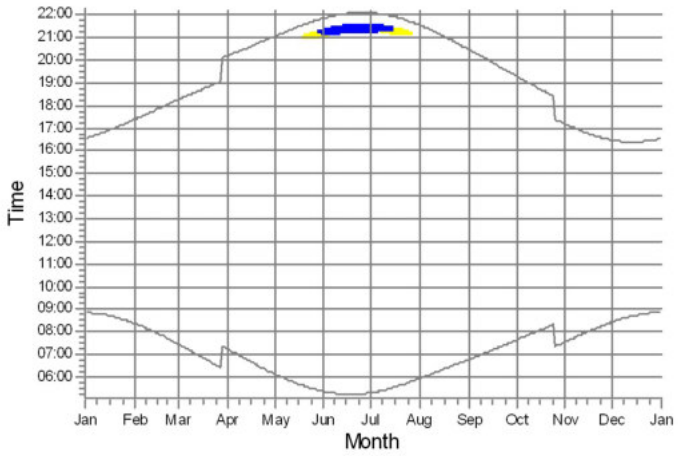
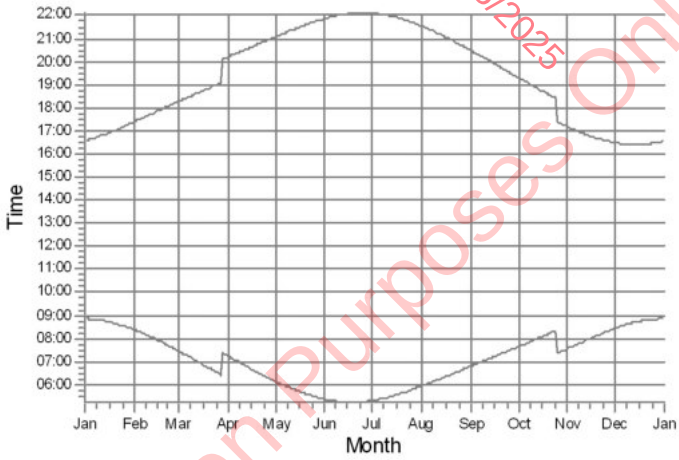
Calculation: 6778 Moanmore Lower Only Worst Case

BI: H61



BJ: H62



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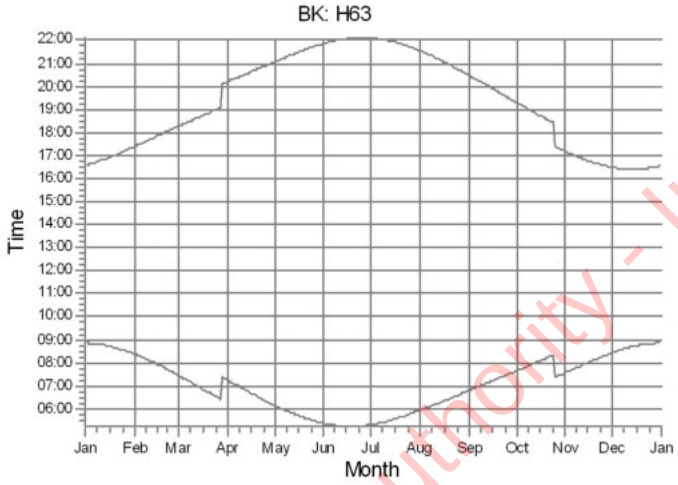
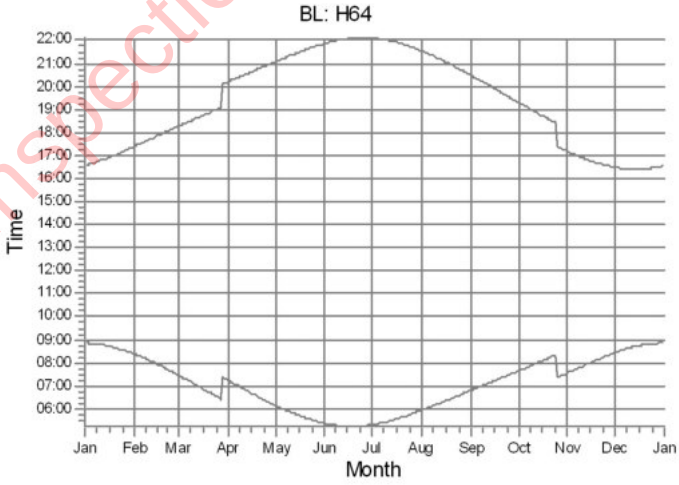
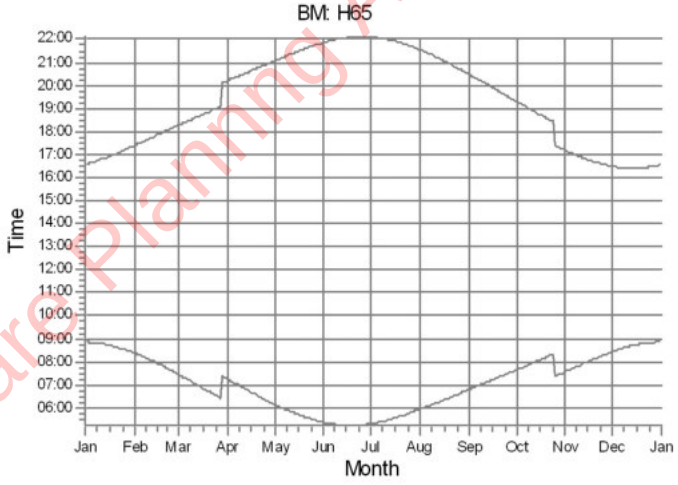


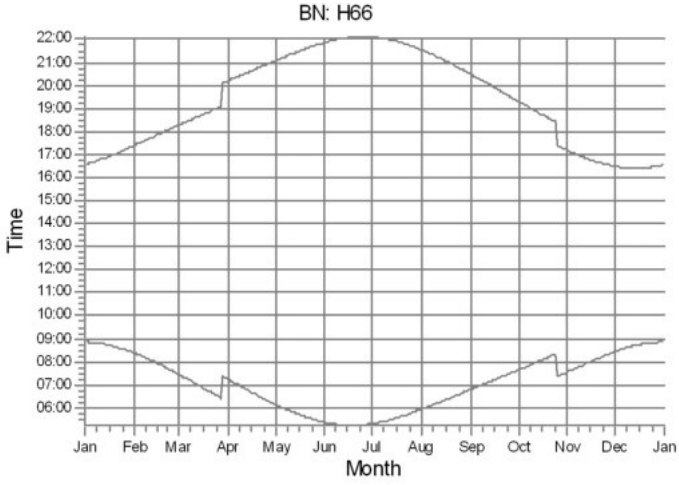
BL: H64



BM: H65



BN: H66



WTGs

2: Moanmore Lower T2

3: Moanmore Lower T3

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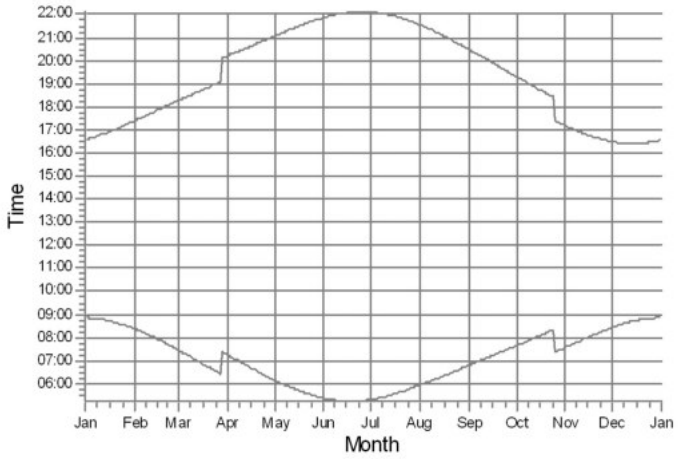
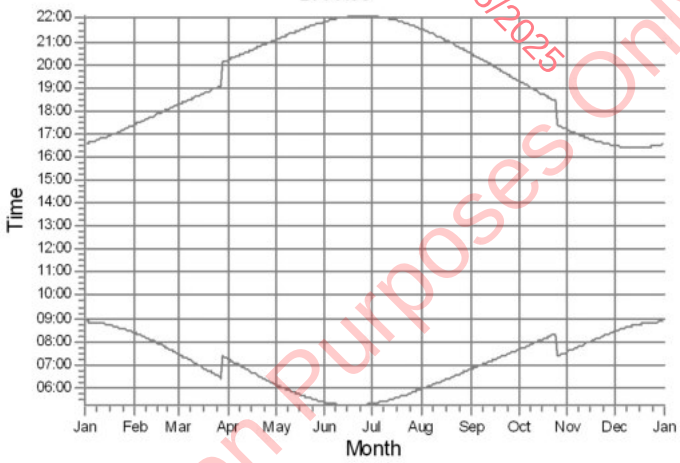
BO: H67



BP: H68



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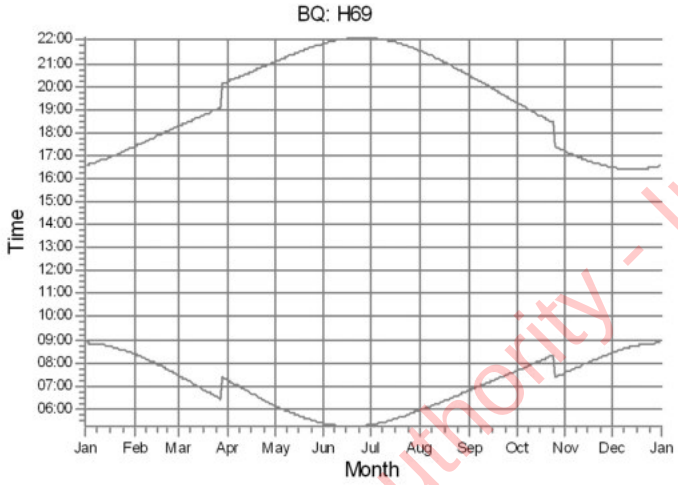

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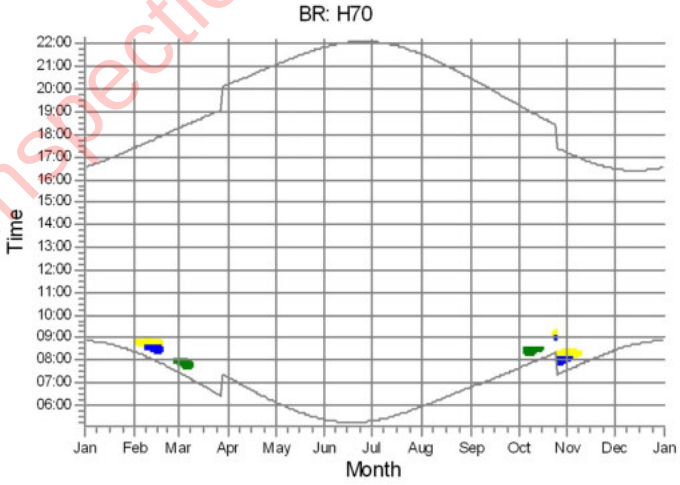

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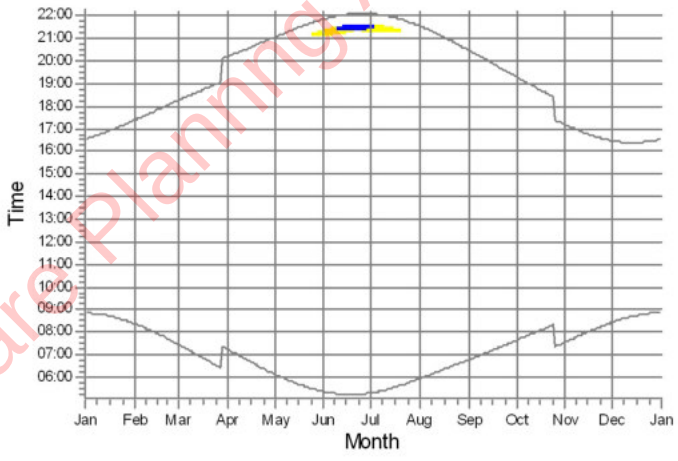
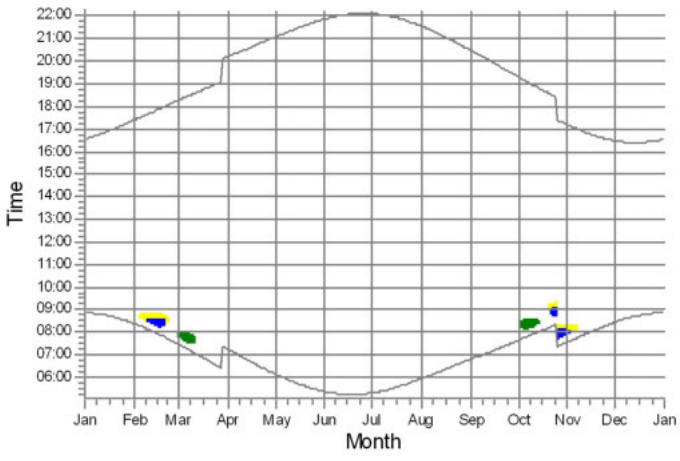


BT: H72



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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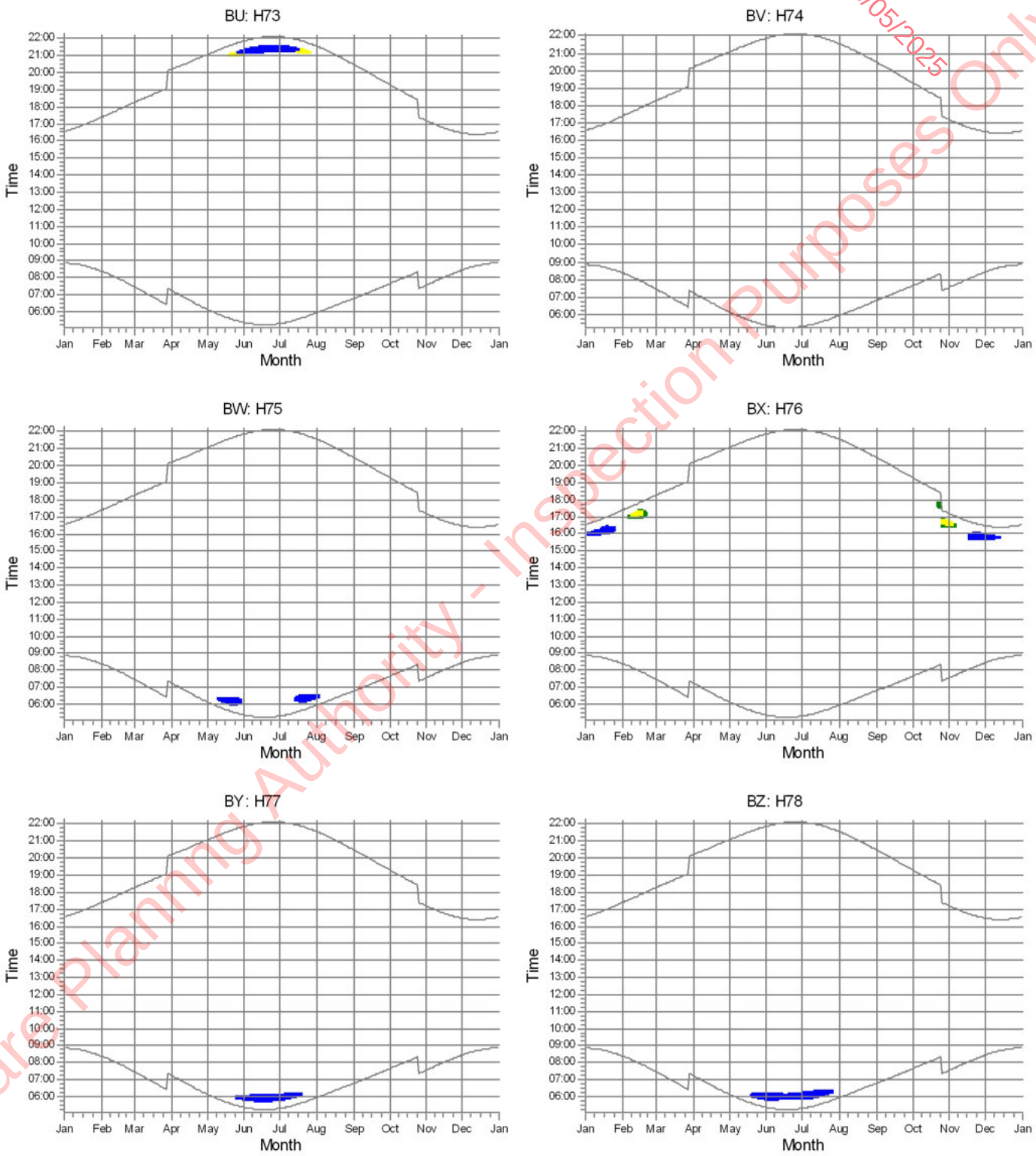
Calculation: 6778 Moanmore Lower Only Worst Case



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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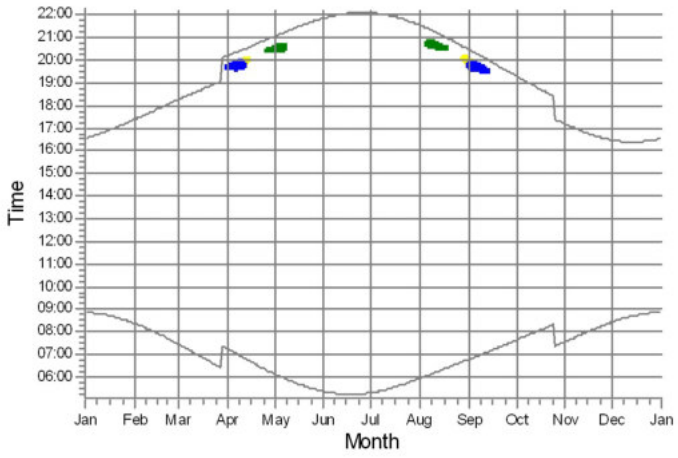
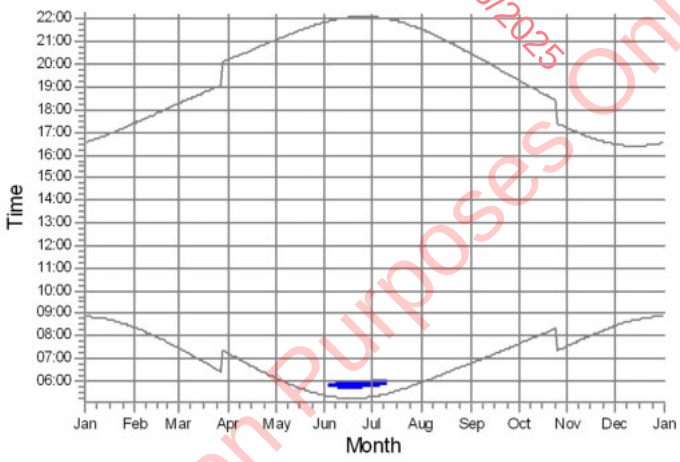
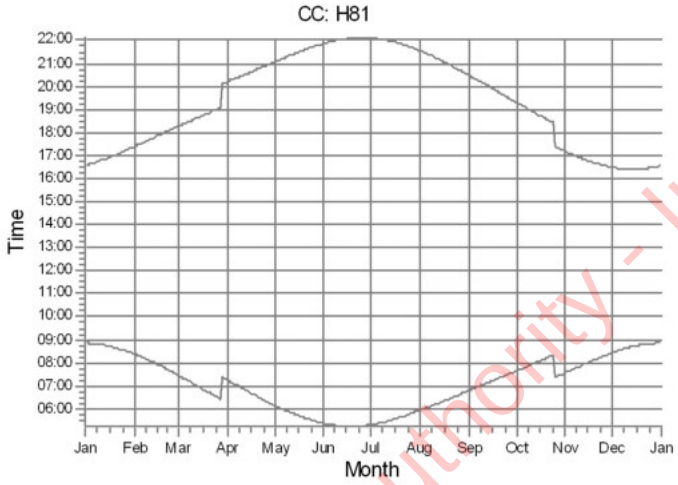
CA: H79



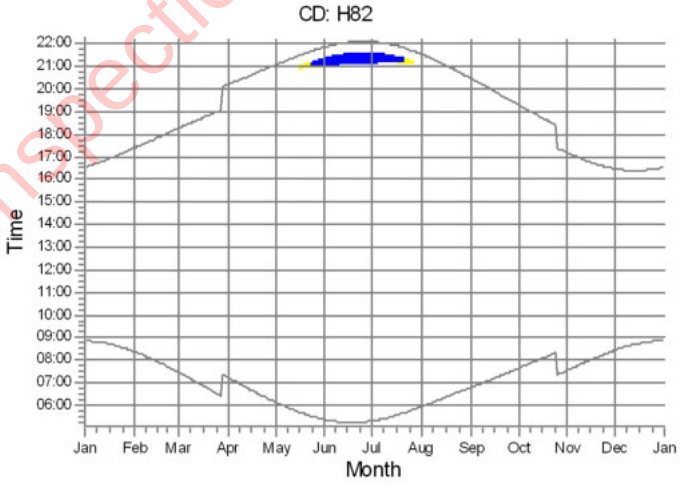
CB: H80



CC: H81



CD: H82



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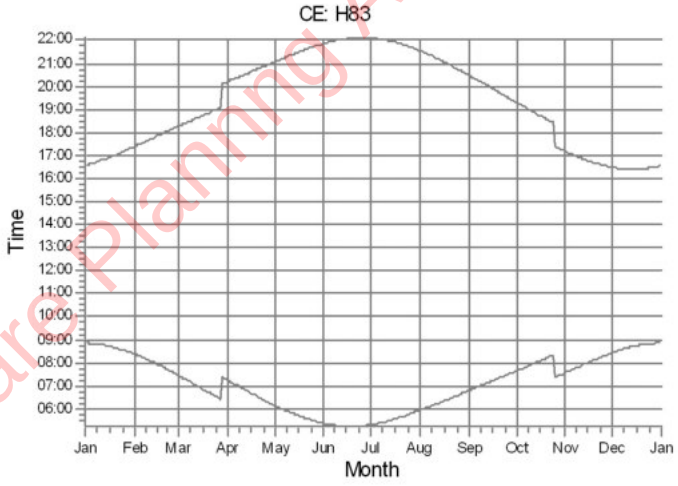
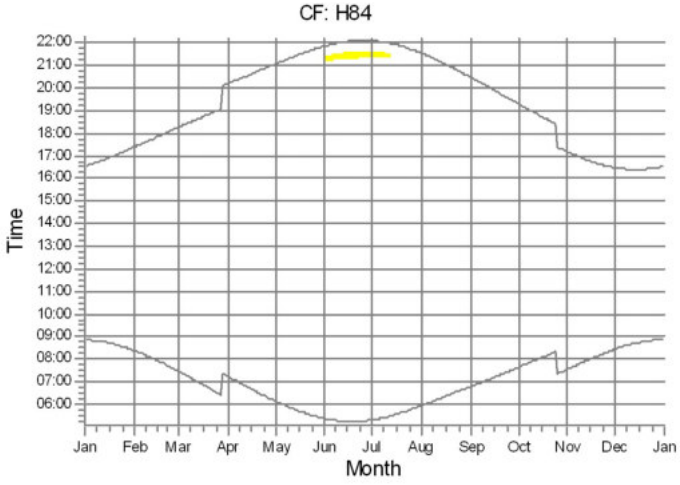


CF: H84



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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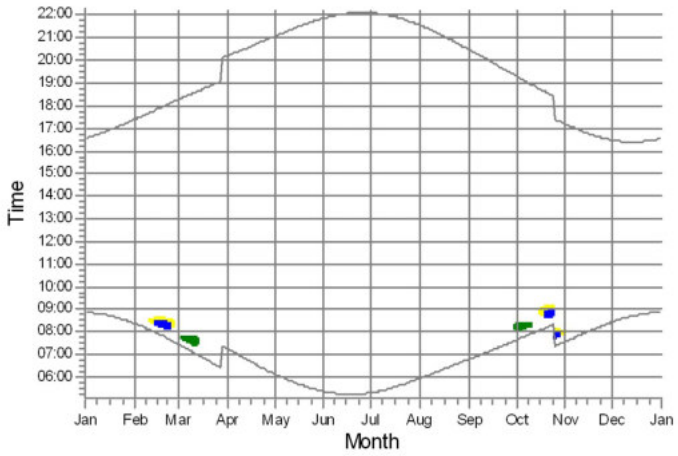
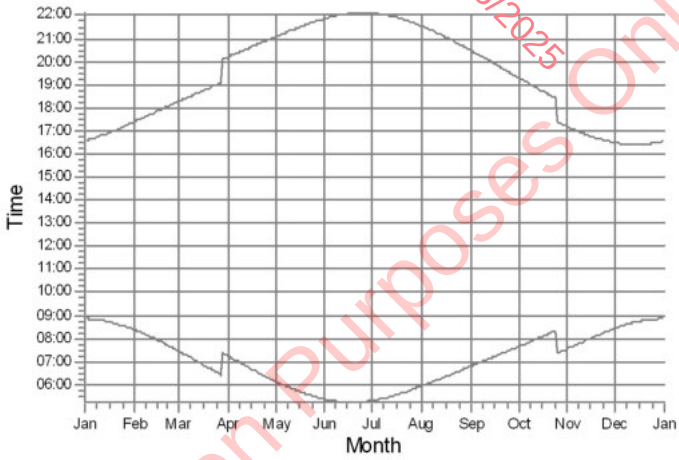
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

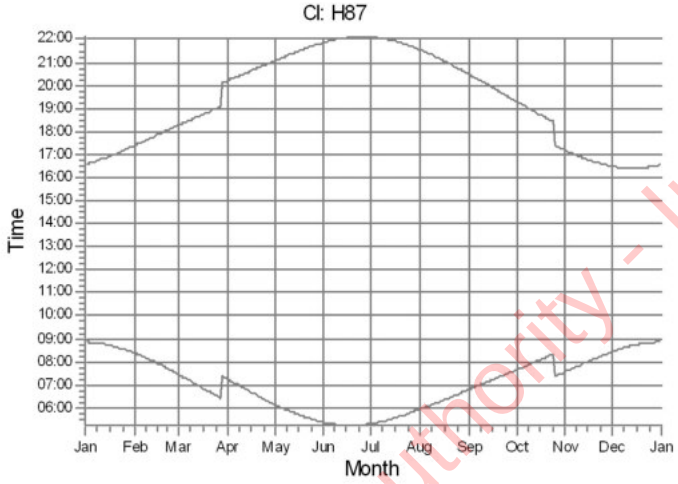
CG: H85



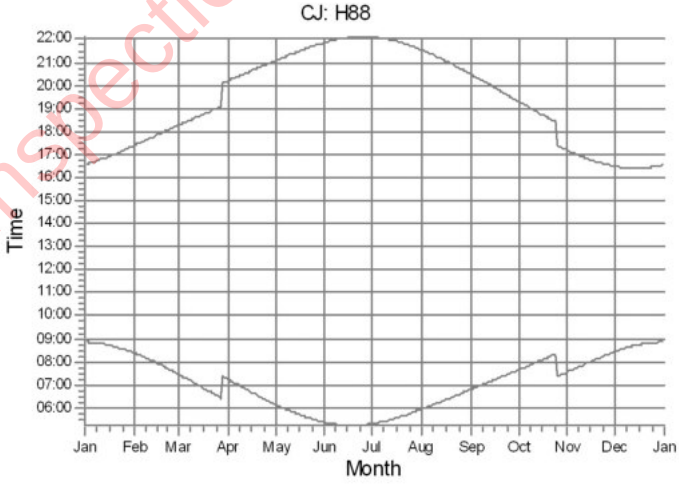
CH: H86



CI: H87



CJ: H88



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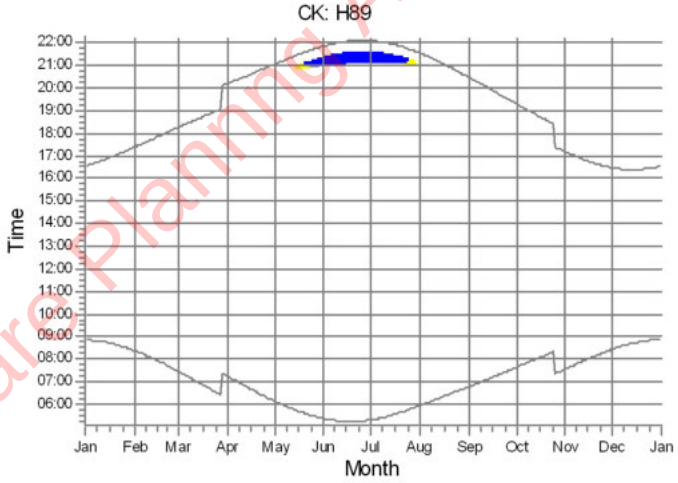

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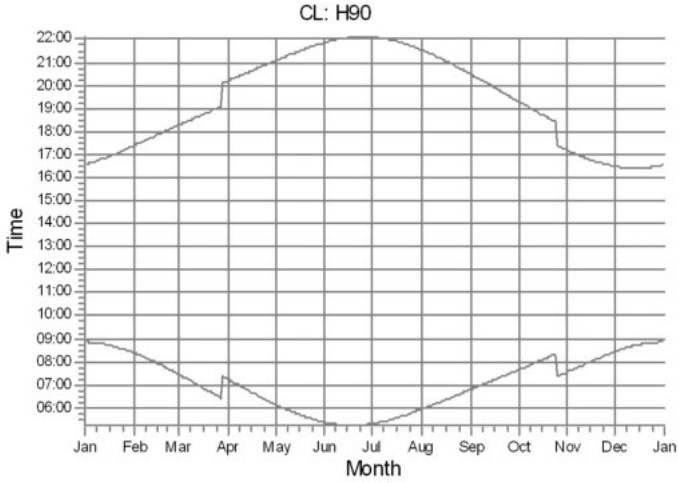

WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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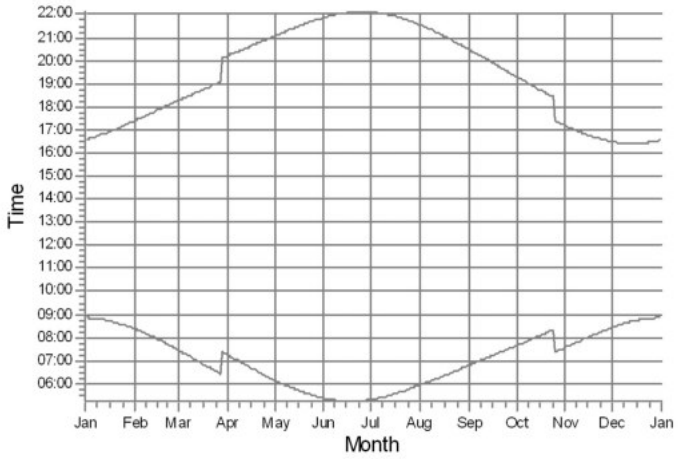
Calculation: 6778 Moanmore Lower Only Worst Case

CM: H91



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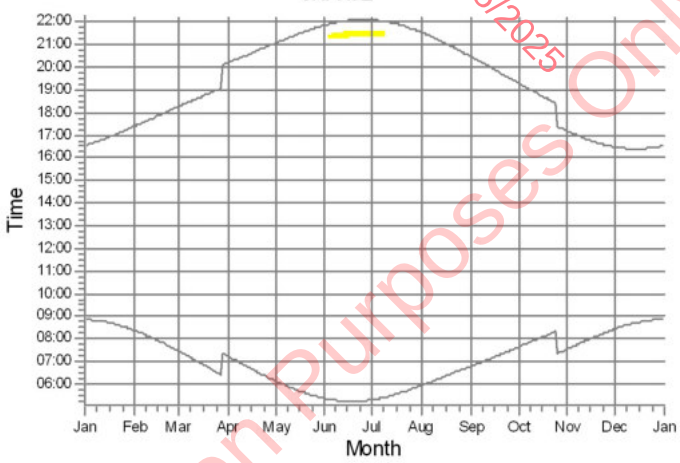

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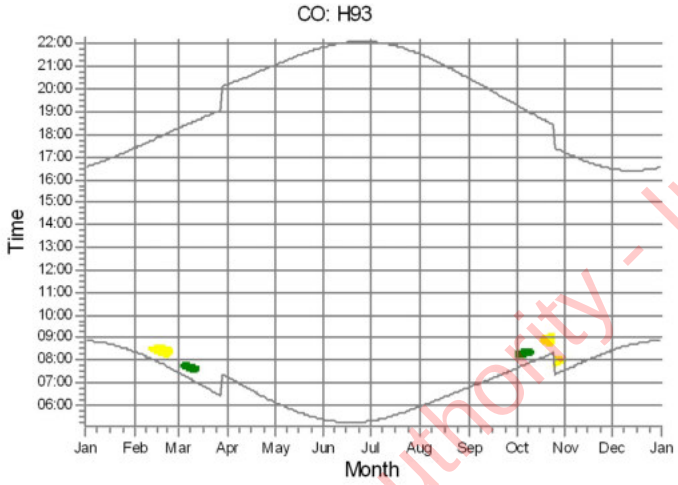
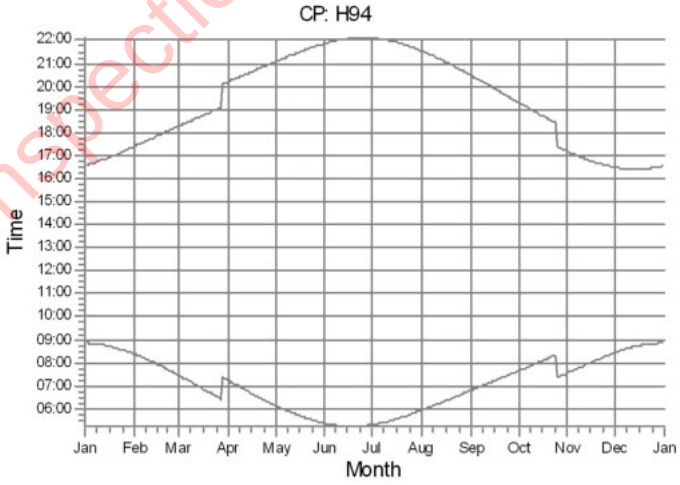
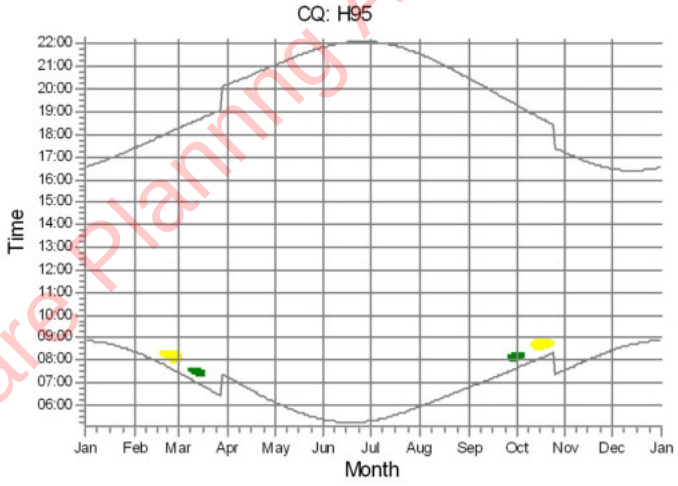


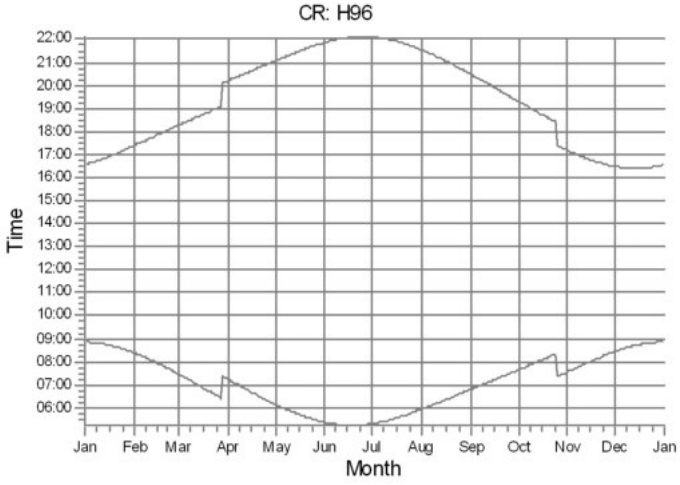
CP: H94



CQ: H95



CR: H96



WTGs

1: Moanmore Lower T1

2: Moanmore Lower T2

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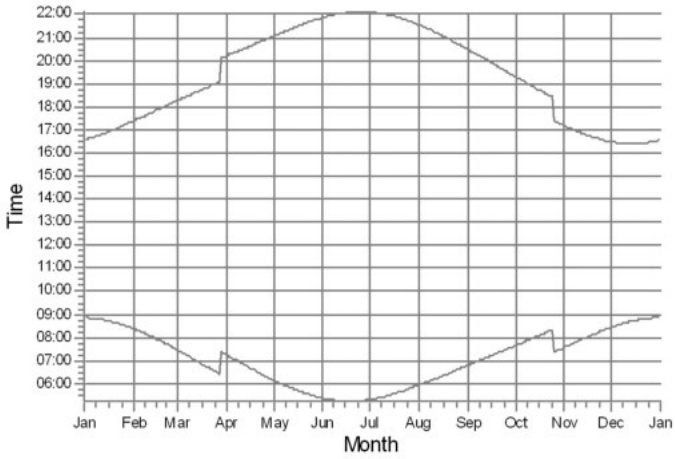
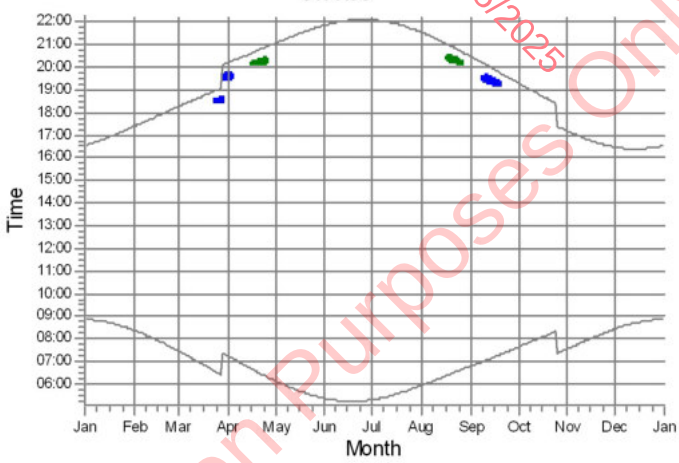
Calculation: 6778 Moanmore Lower Only Worst Case

CS: H97



CT: H98



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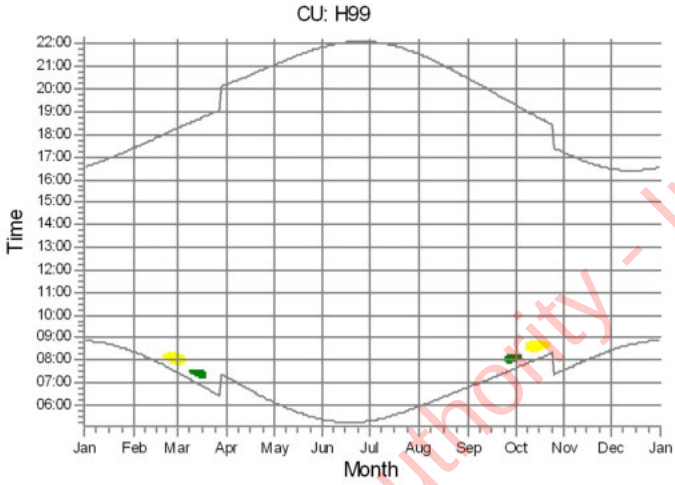

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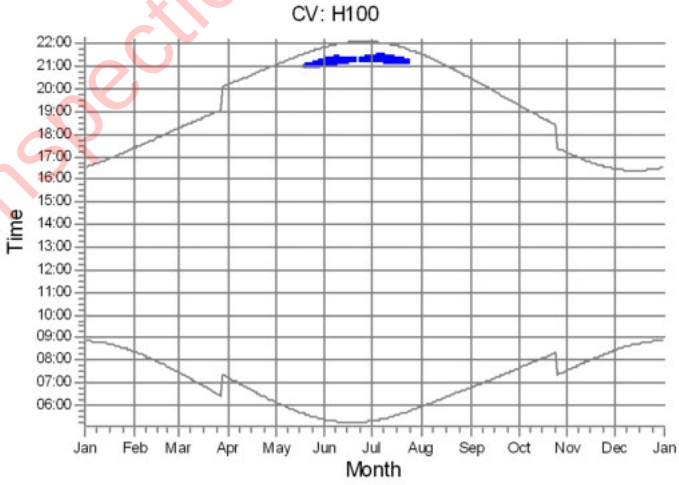
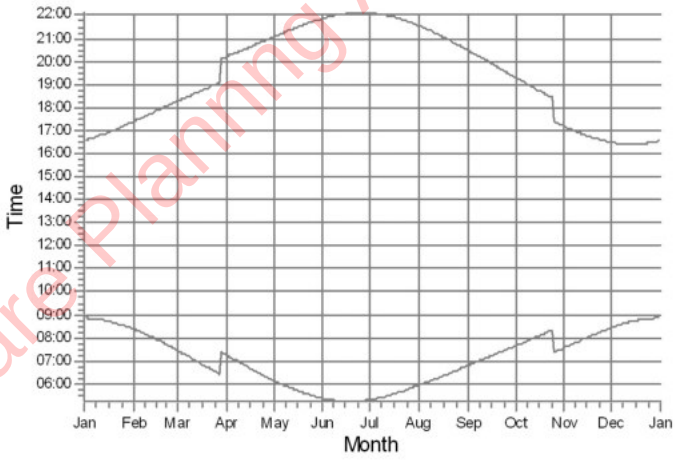
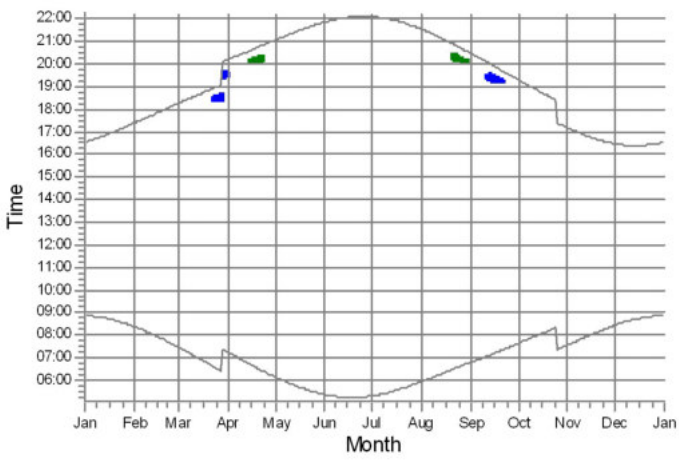


CW: H101



CX: H102



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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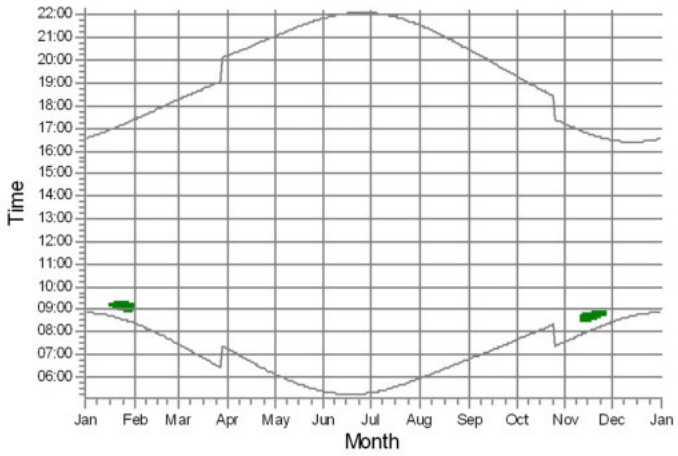
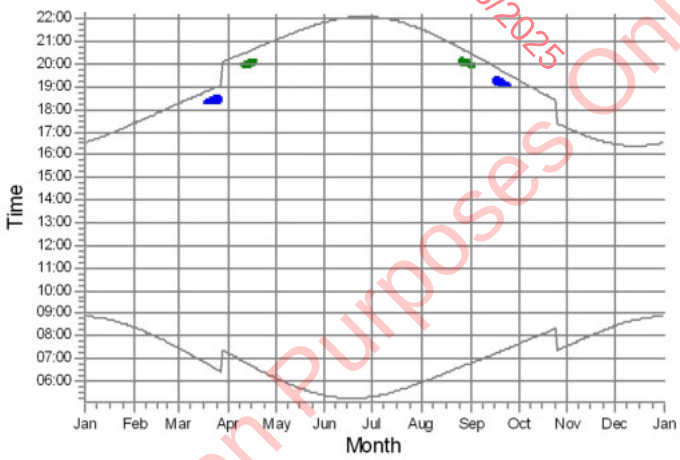
Calculation: 6778 Moanmore Lower Only Worst Case

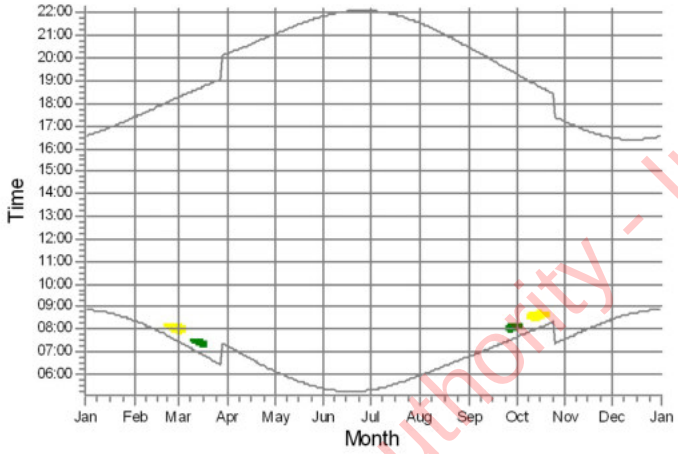
CY: H103



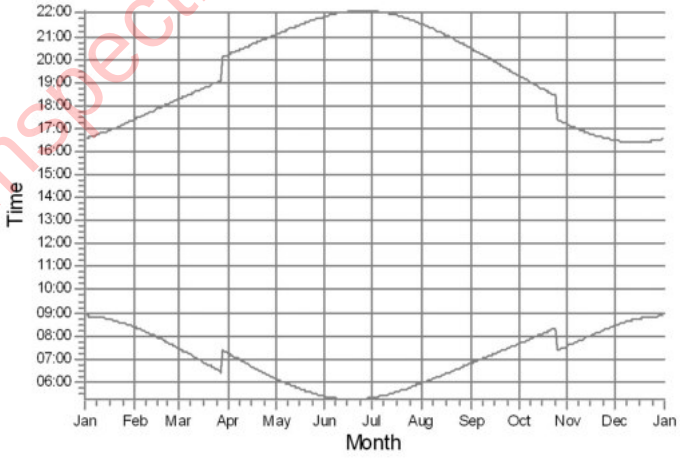
CZ: H104



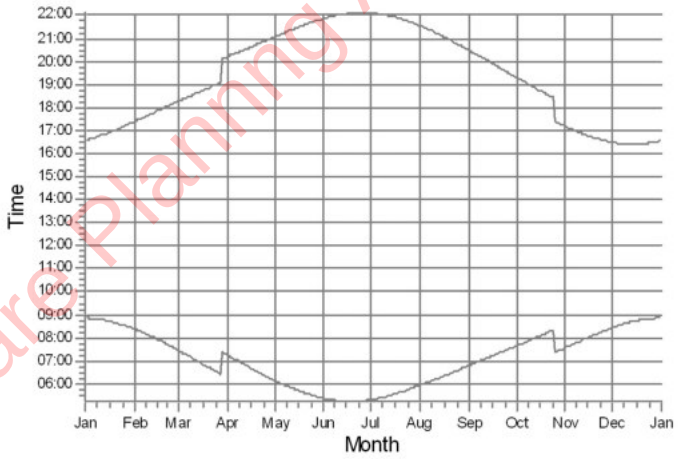
DA: H105



DB: H106



DC: H107



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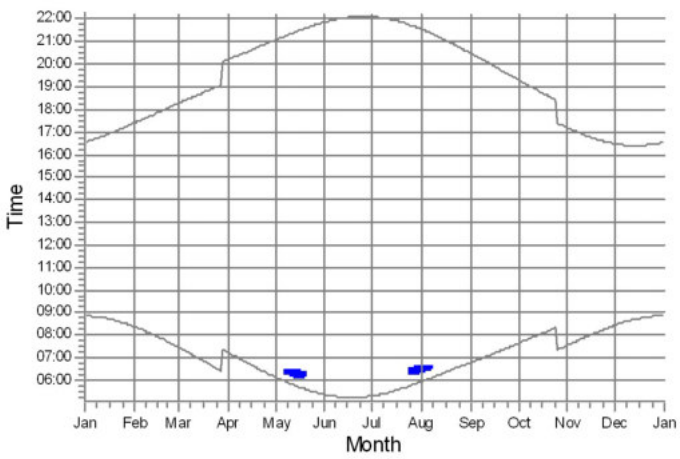

WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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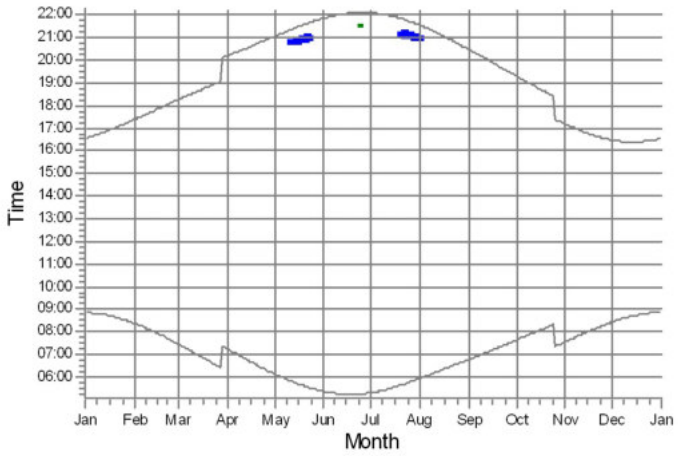
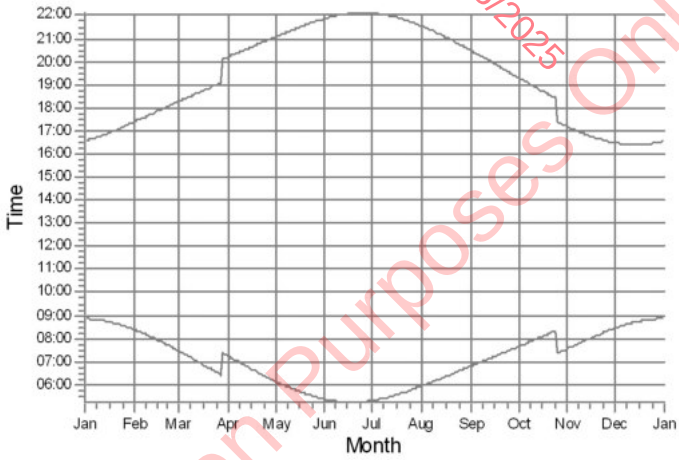
Calculation: 6778 Moanmore Lower Only Worst Case

DE: H109



DF: H110



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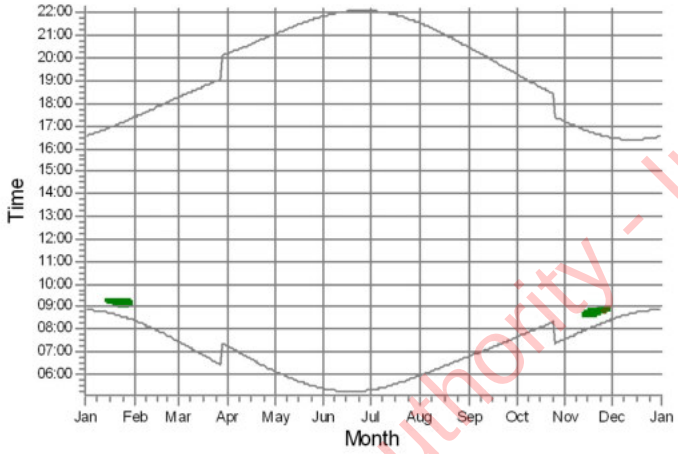
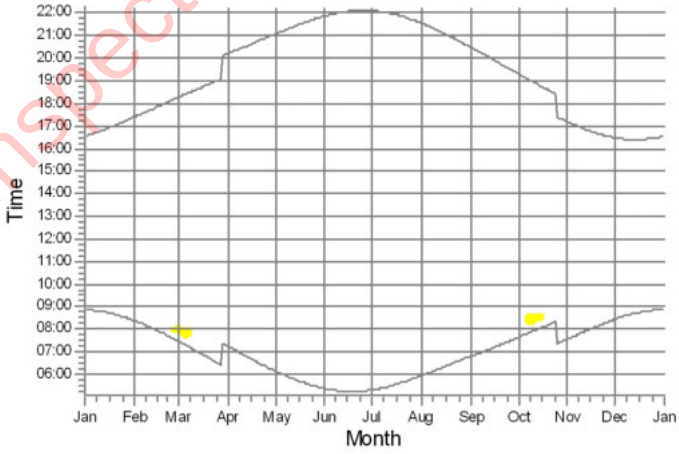
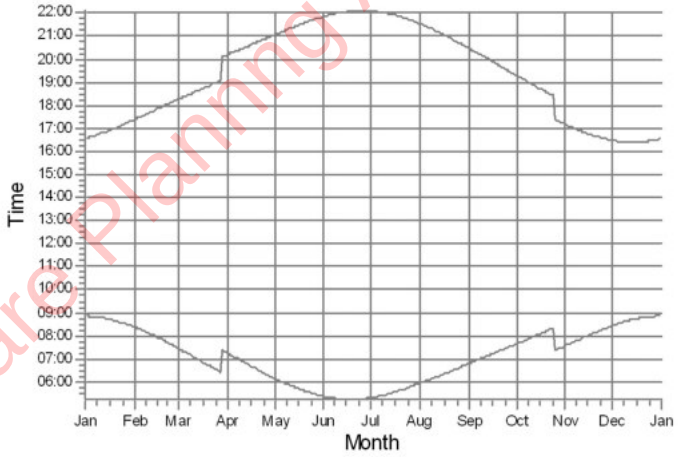


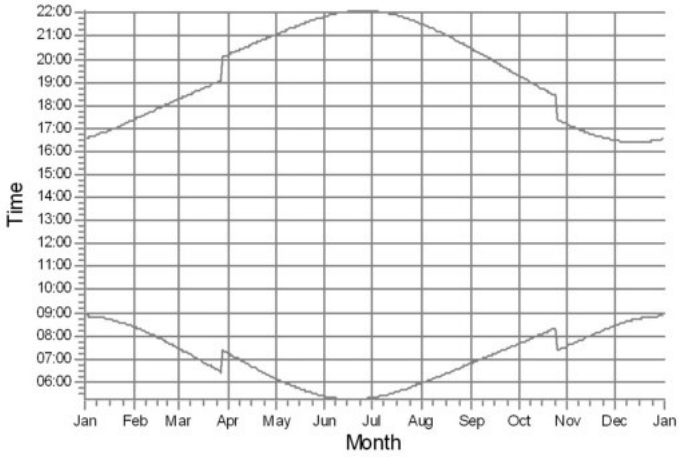
DH: H112



DI: H113



DJ: H114



WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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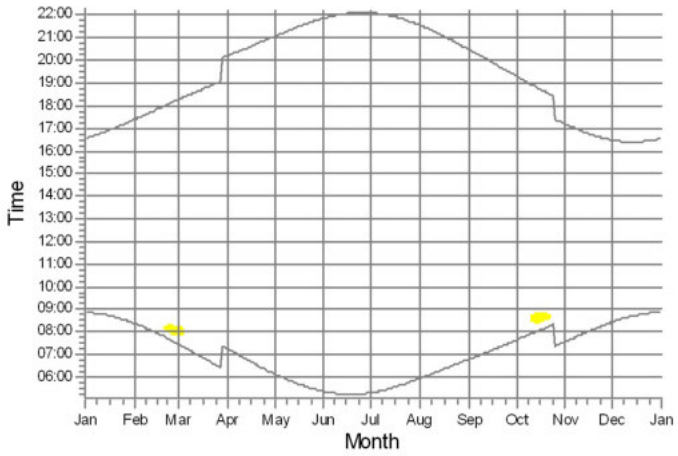
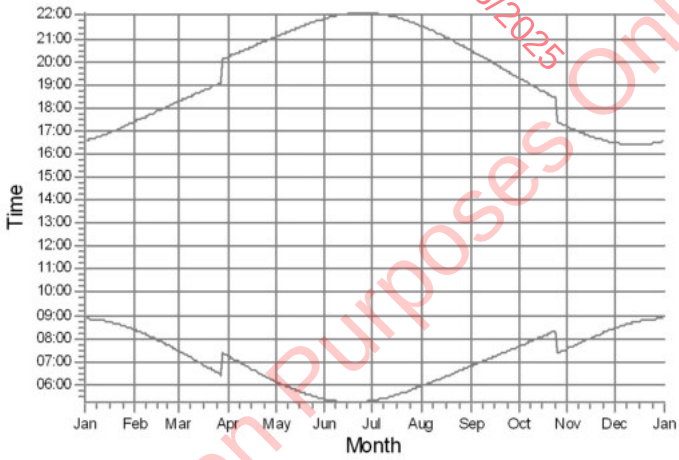
Calculation: 6778 Moanmore Lower Only Worst Case

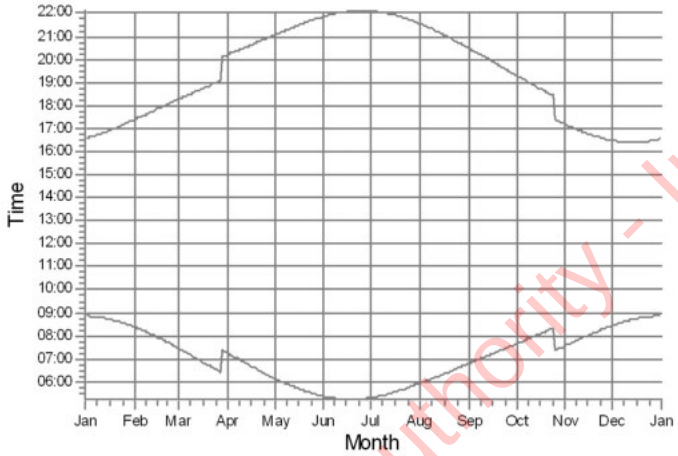
DK: H115



DL: H116



DM: H117



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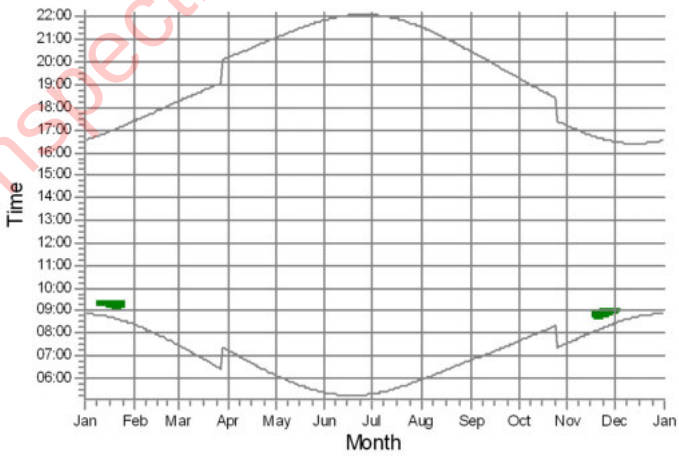
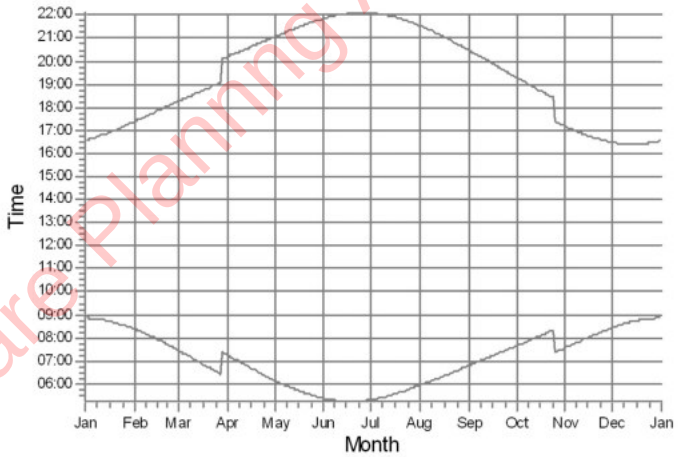
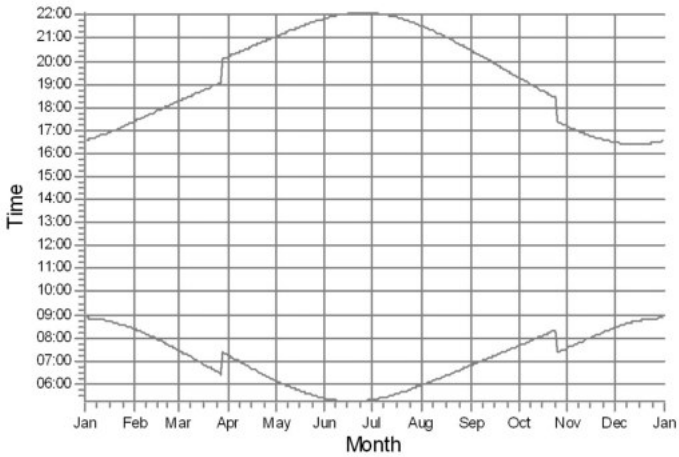


DO: H119



DP: H120



WTGs

1: Moanmore Lower T1

2: Moanmore Lower T2

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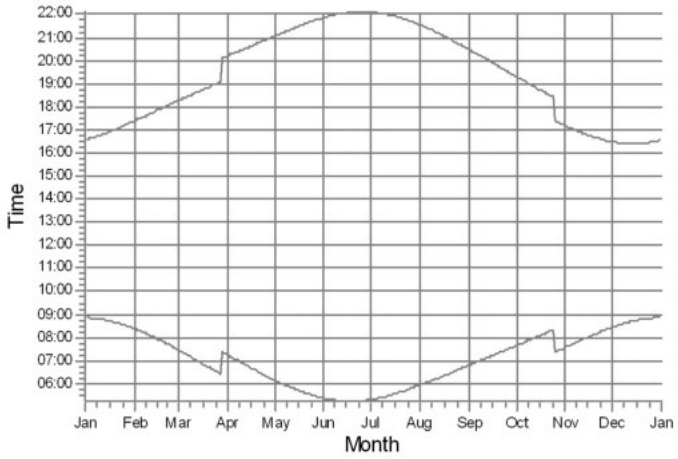
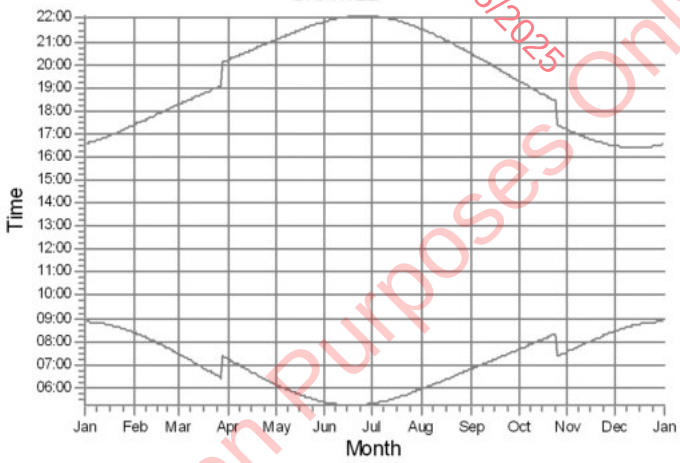
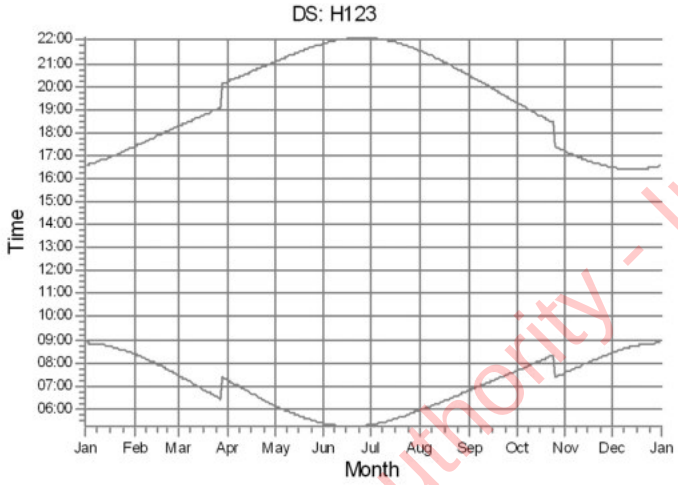
DQ: H121



DR: H122



DS: H123



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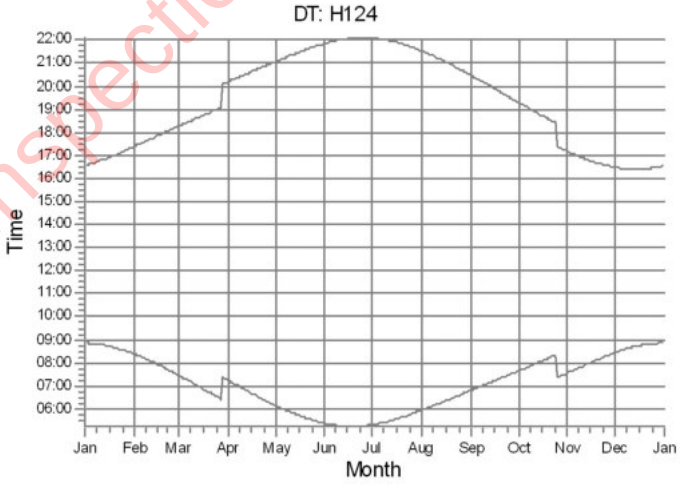
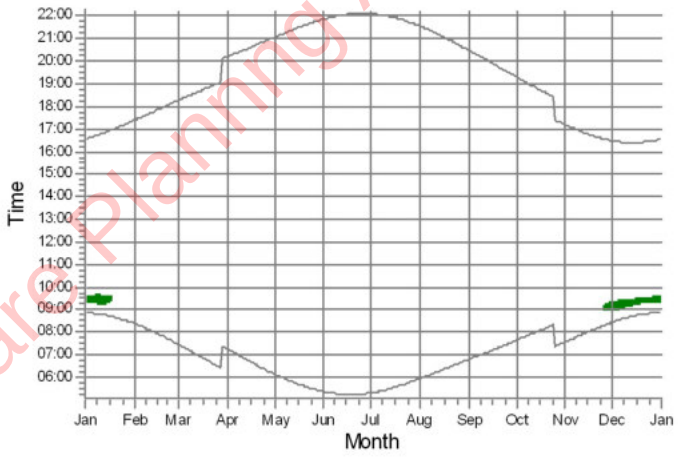
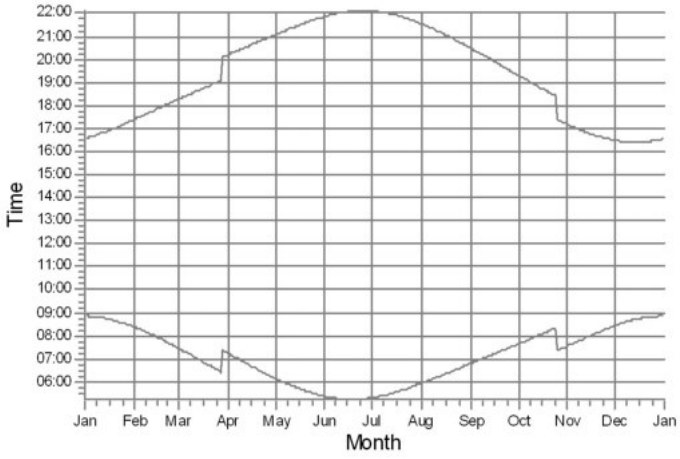


DU: H125



DV: H126



WTGs

1: Moanmore Lower T1

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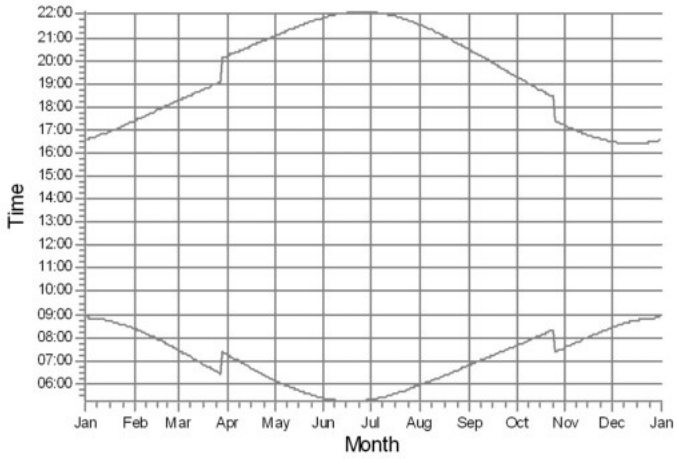
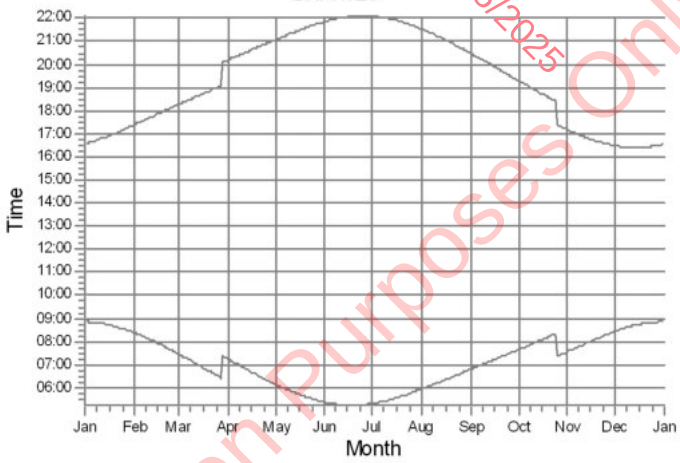
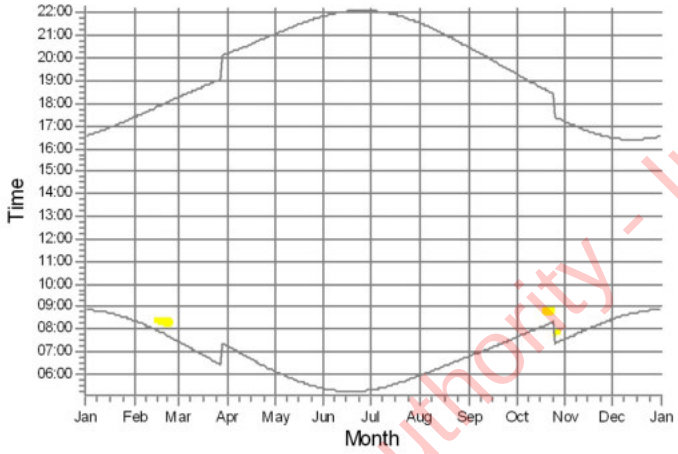
DW: H127



DX: H128



DY: H129



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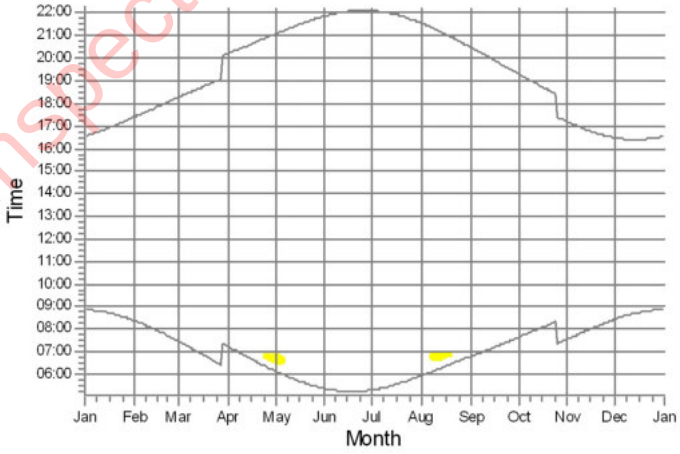
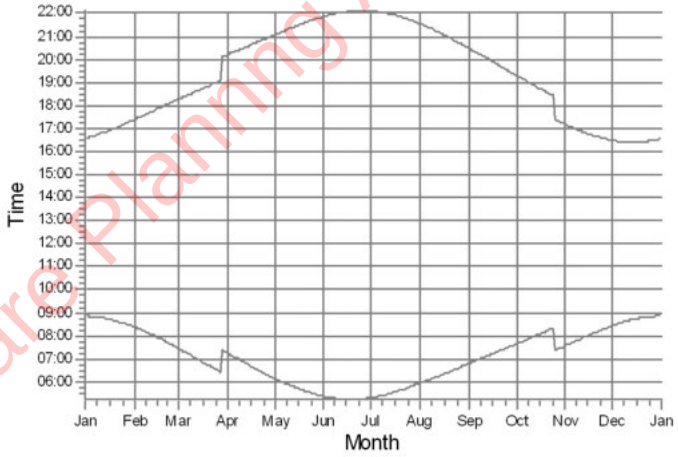
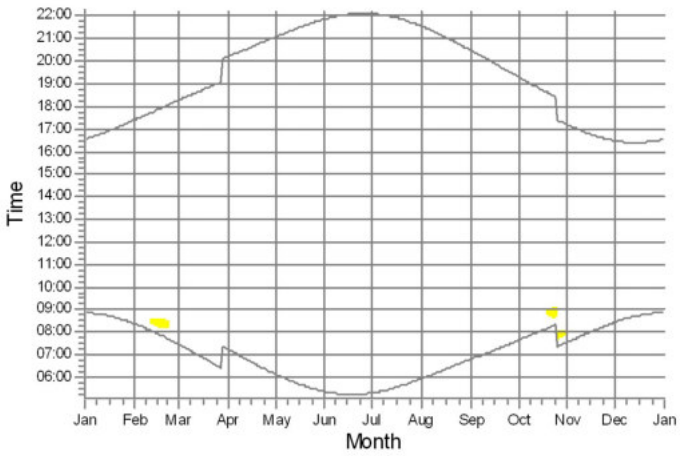


EA: H131



EB: H132



WTGs

2: Moanmore Lower T2

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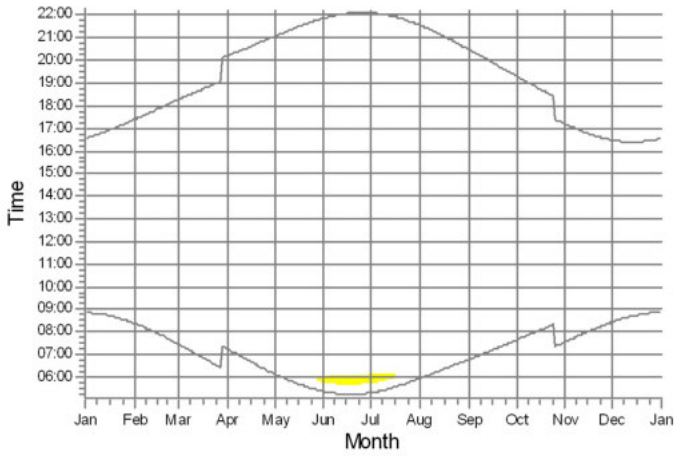
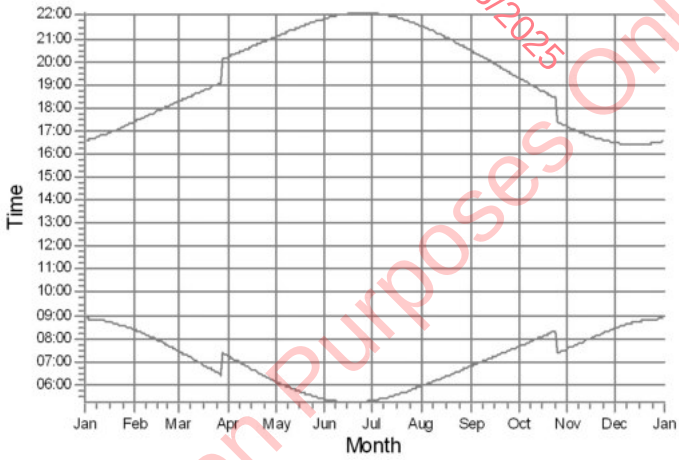
Calculation: 6778 Moanmore Lower Only Worst Case

EC: H133



ED: H134



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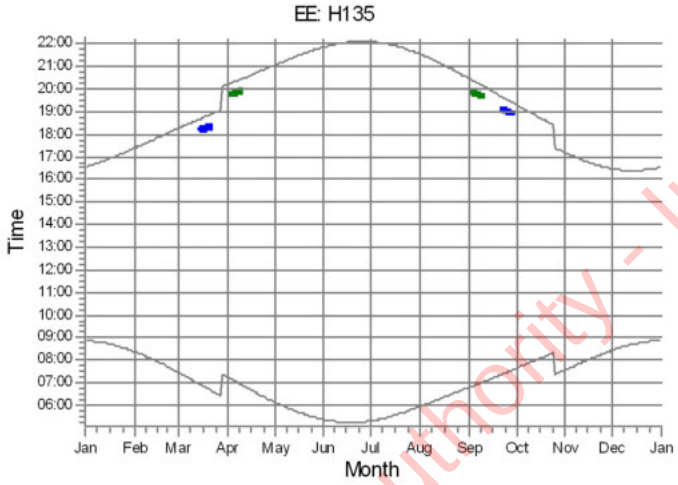

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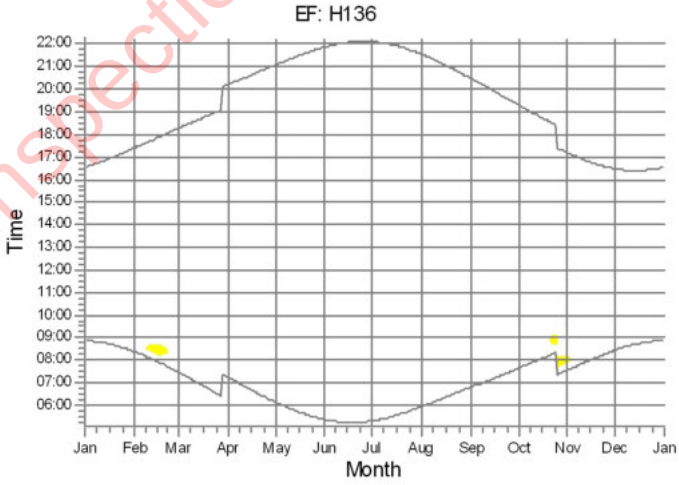
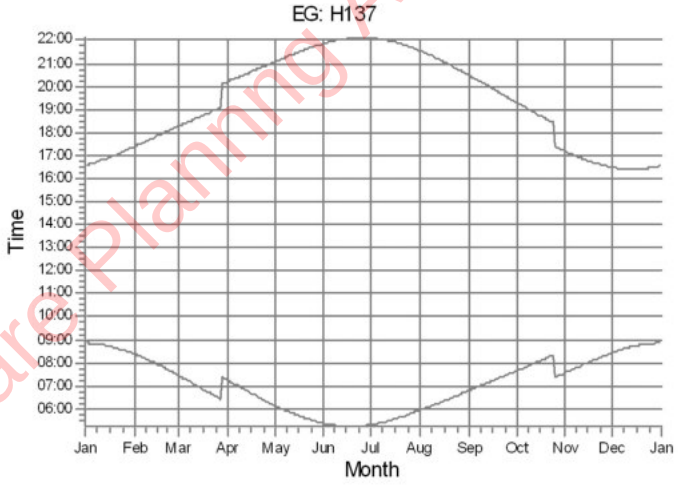
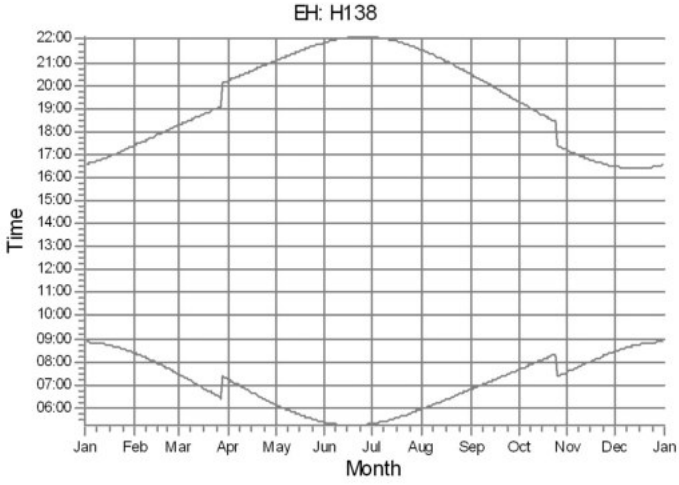


EG: H137



EH: H138



WTGs

1: Moanmore Lower T1 2: Moanmore Lower T2 3: Moanmore Lower T3

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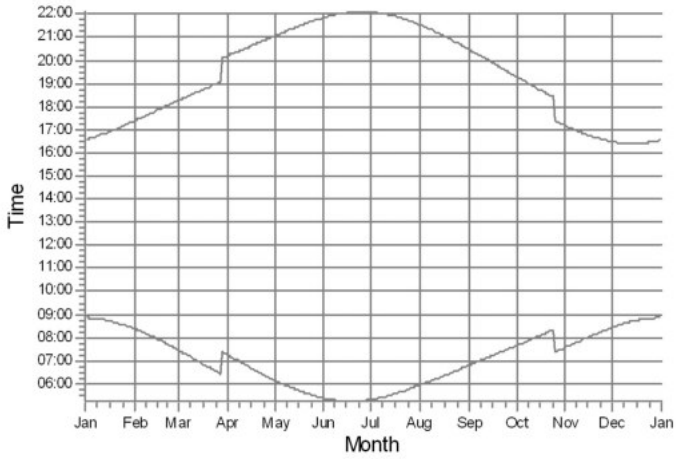
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

EI: H139



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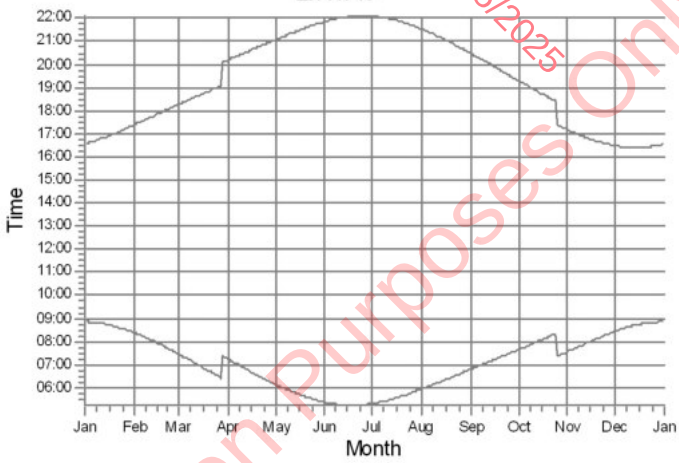

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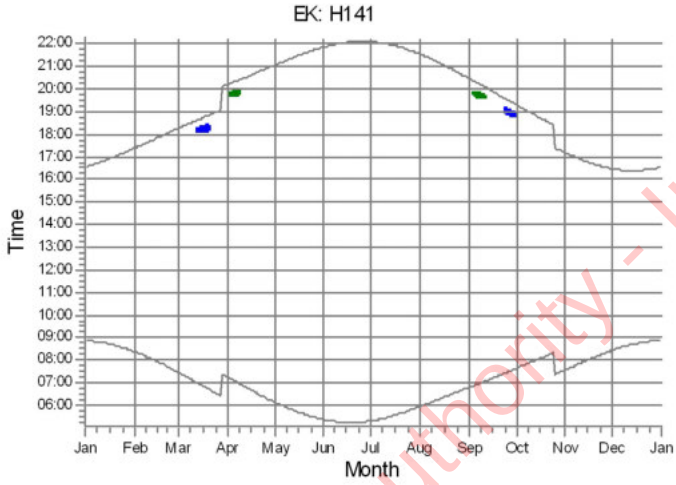

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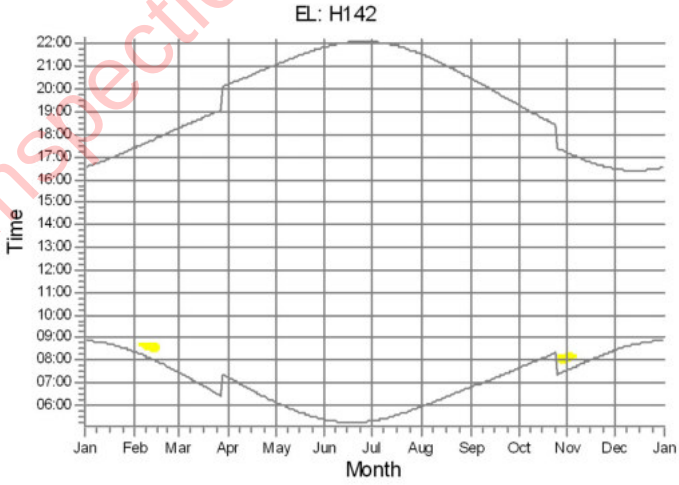
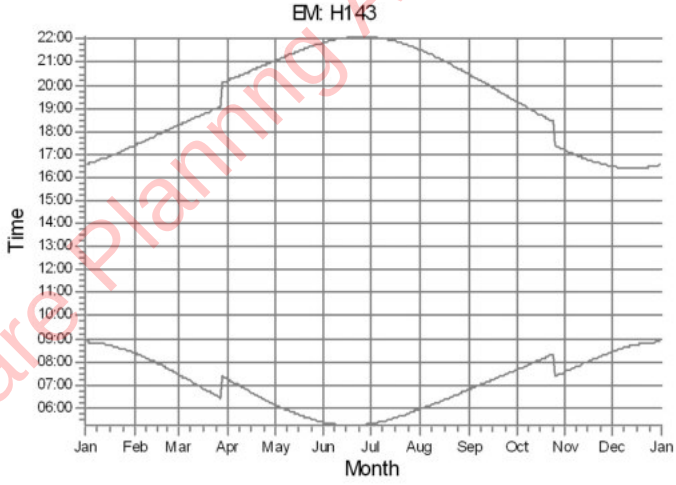


EM: H143



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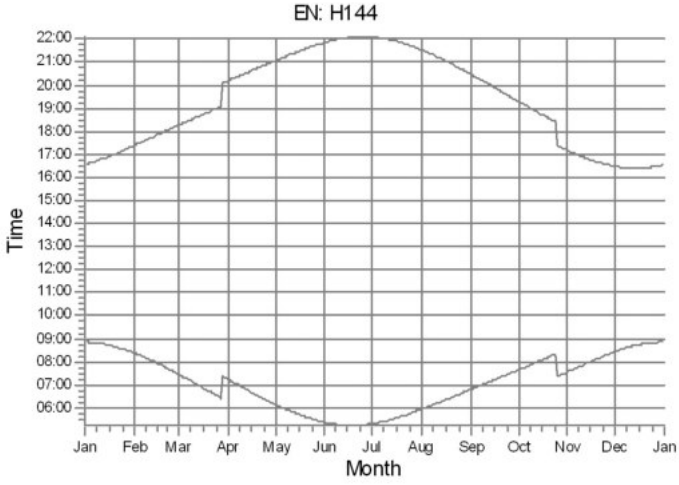

WTGs

1: Moanmore Lower T1 | 2: Moanmore Lower T2 | 3: Moanmore Lower T3

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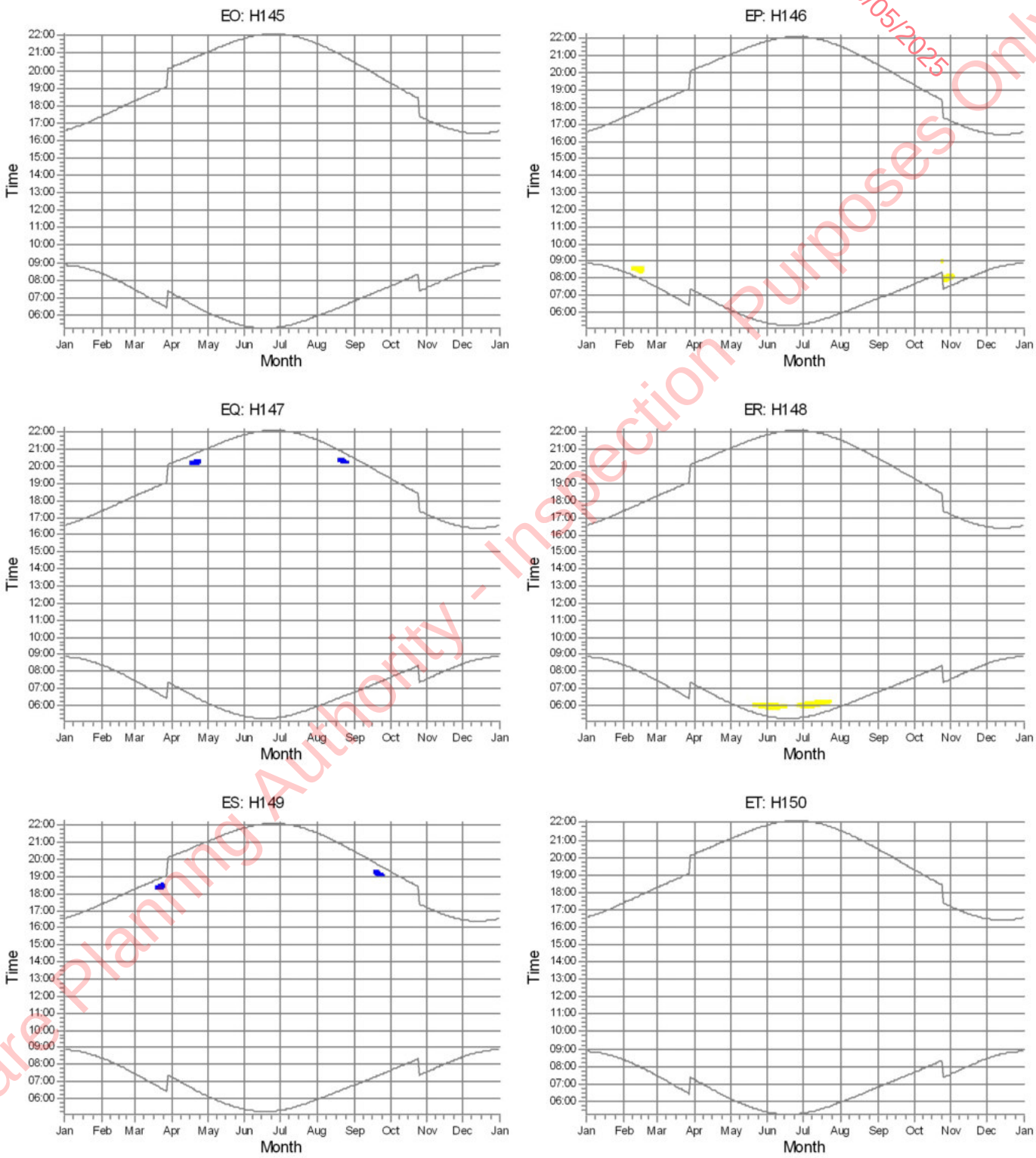
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case



WTGs

2: Moanmore Lower T2

3: Moanmore Lower T3

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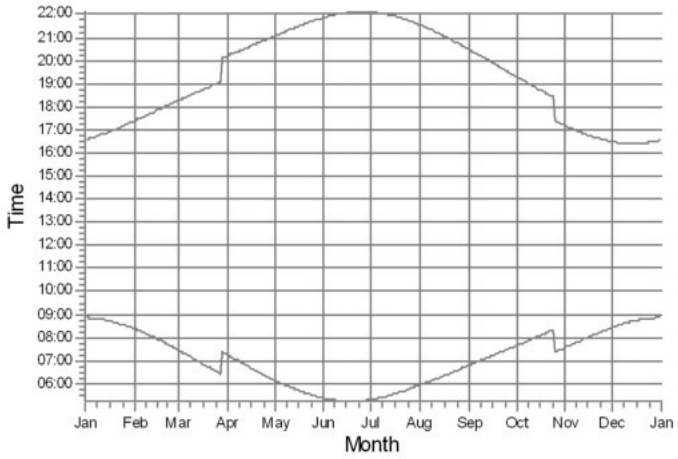
Calculation: 6778 Moanmore Lower Only Worst Case

EU: H151



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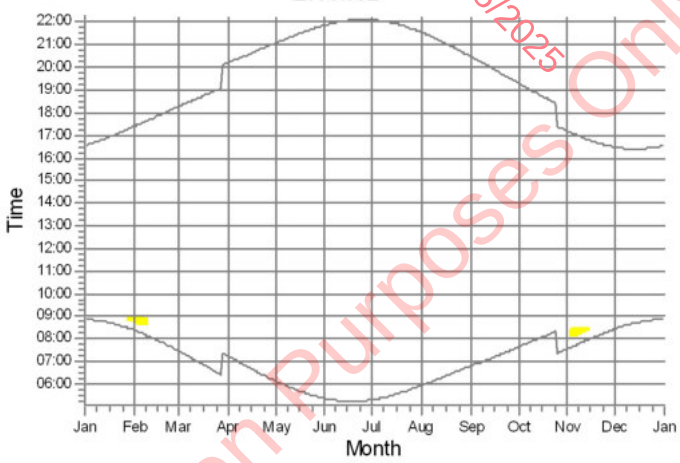

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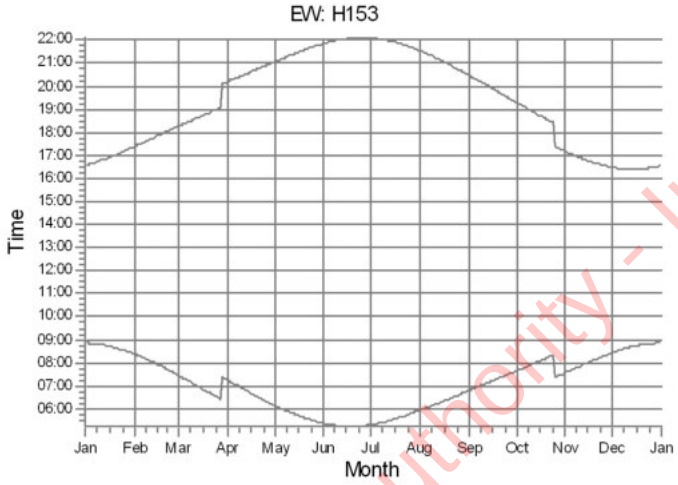
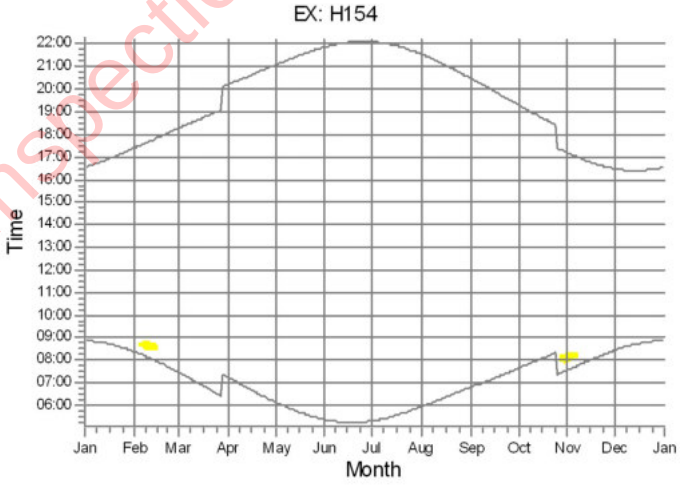
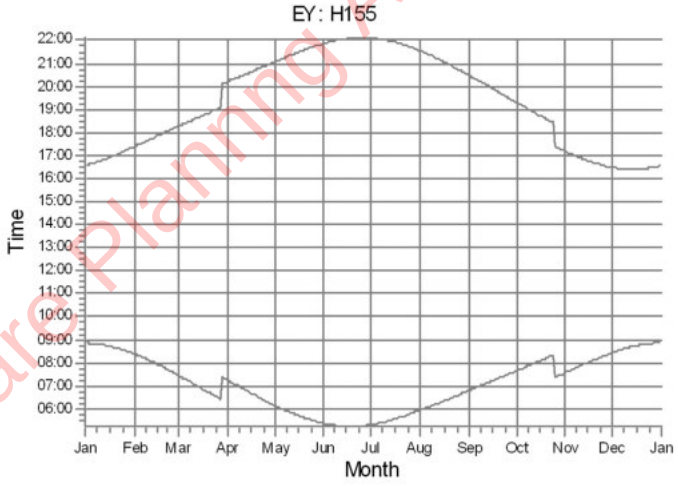


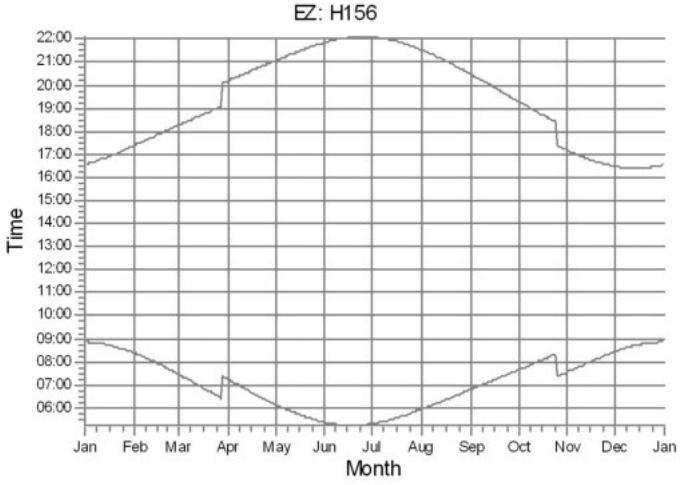
EX: H154



EY: H155



EZ: H156



WTGs

2: Moanmore Lower T2

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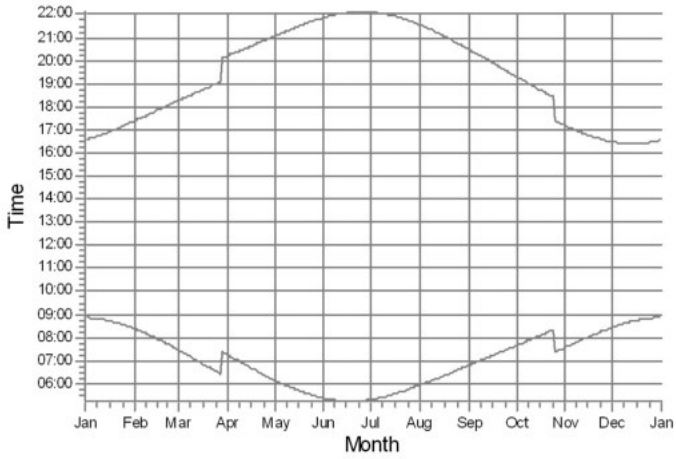
Calculation: 6778 Moanmore Lower Only Worst Case

FA: H157



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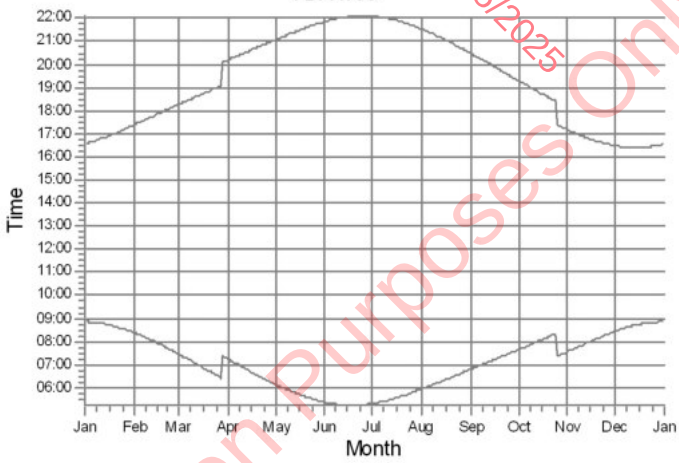

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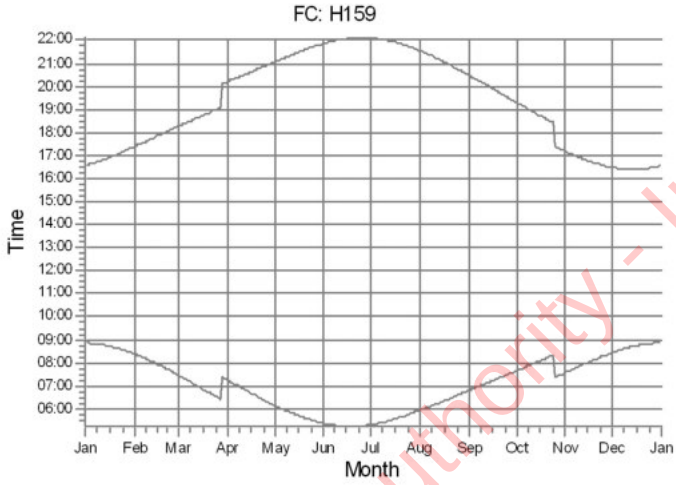

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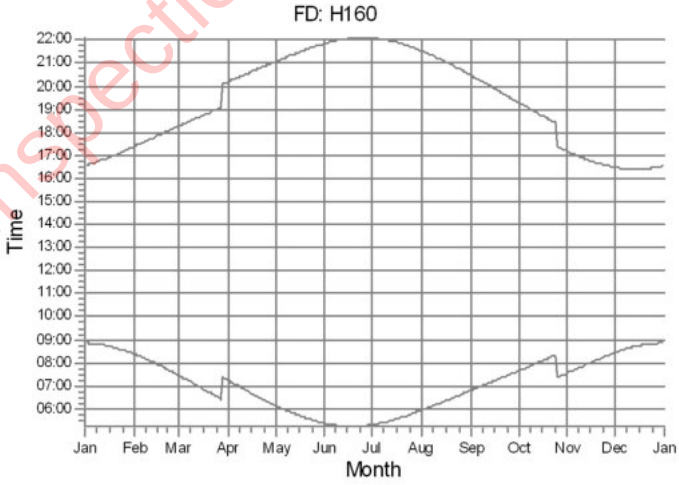

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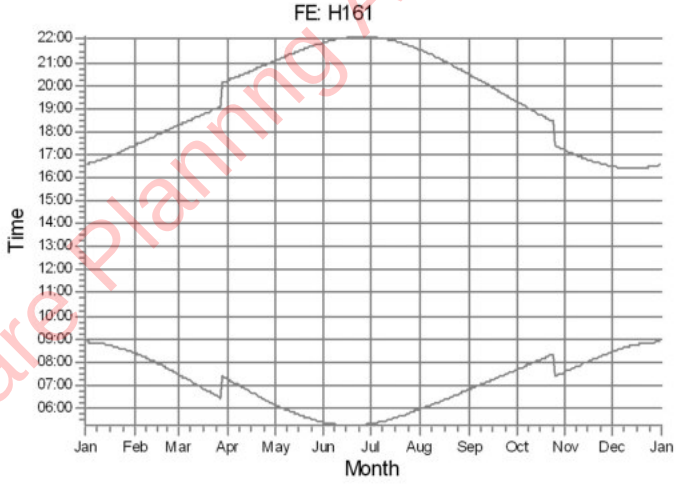

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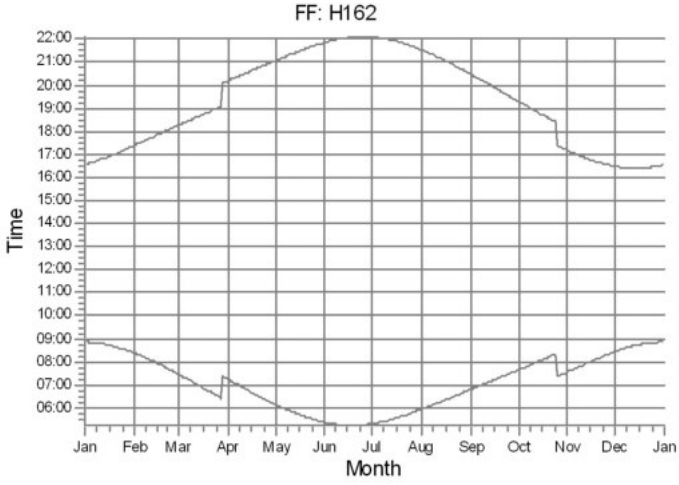

WTGs

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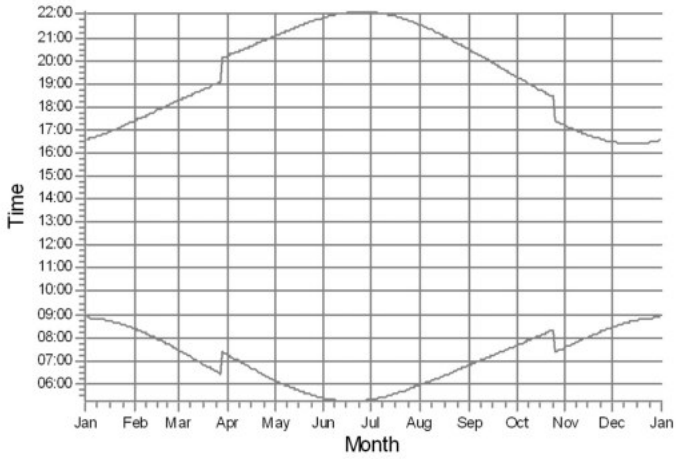
Calculation: 6778 Moanmore Lower Only Worst Case

FG: H163



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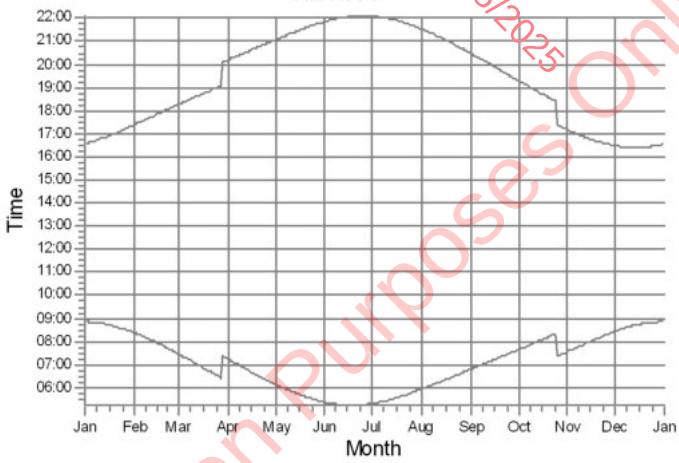
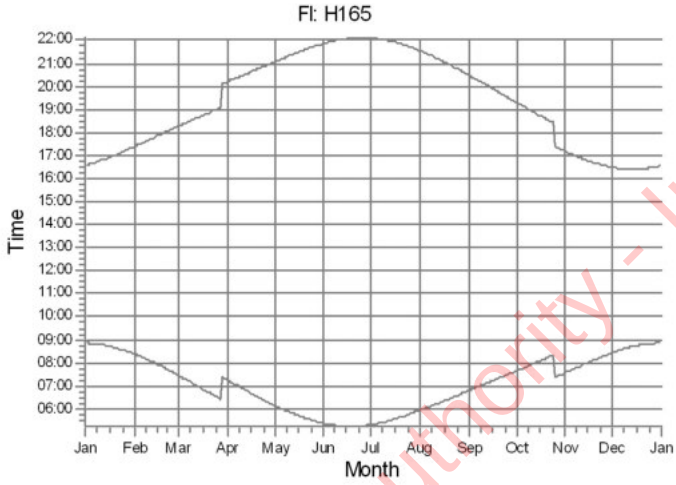
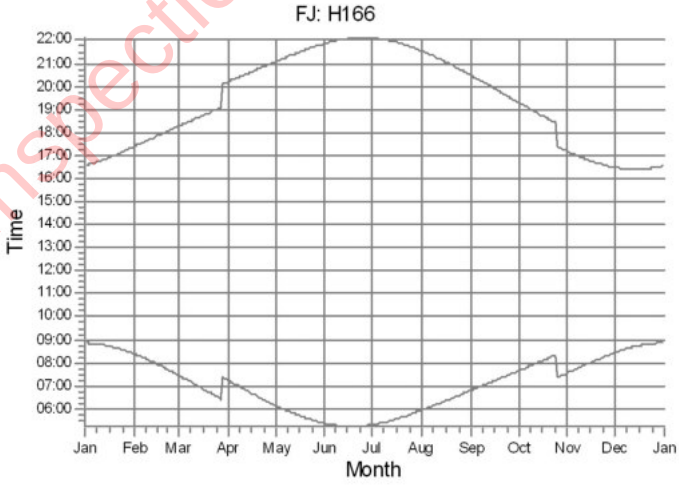


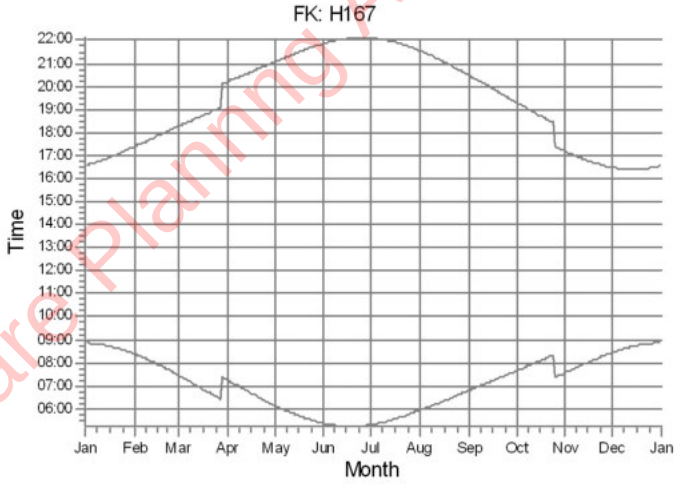
FI: H165



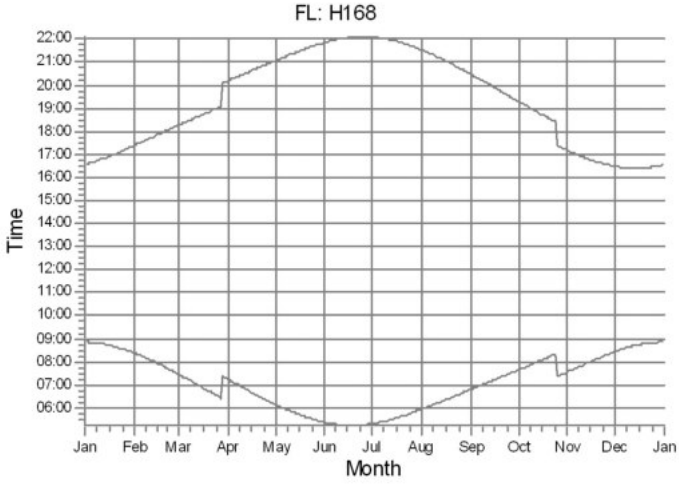
FJ: H166



FK: H167



FL: H168



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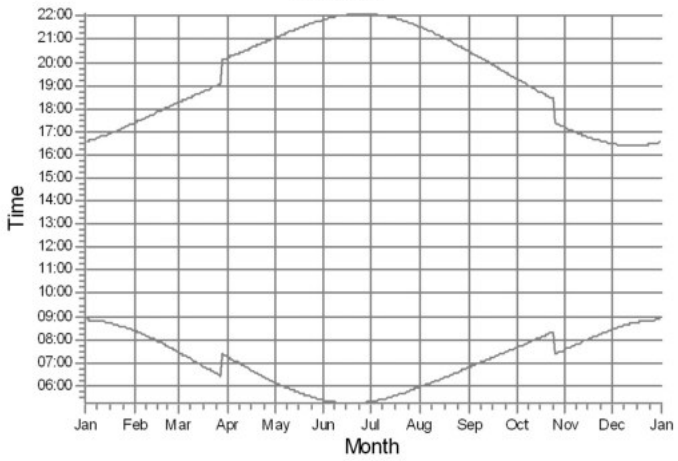
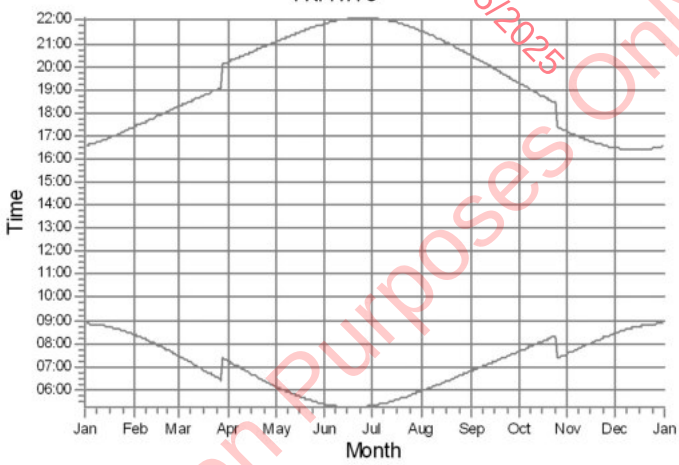
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

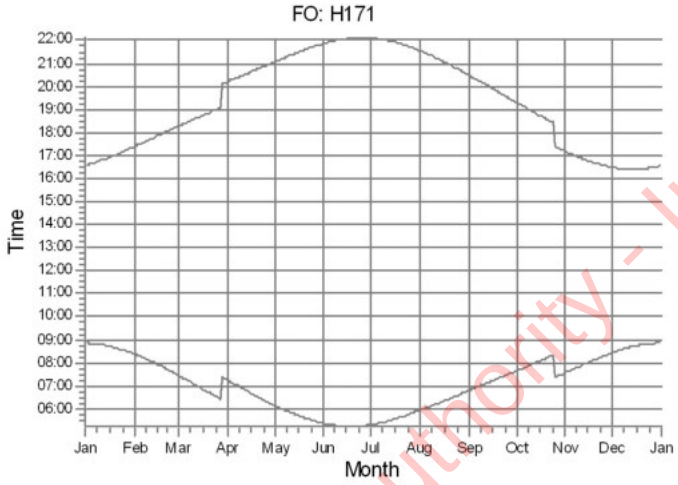
FM: H169



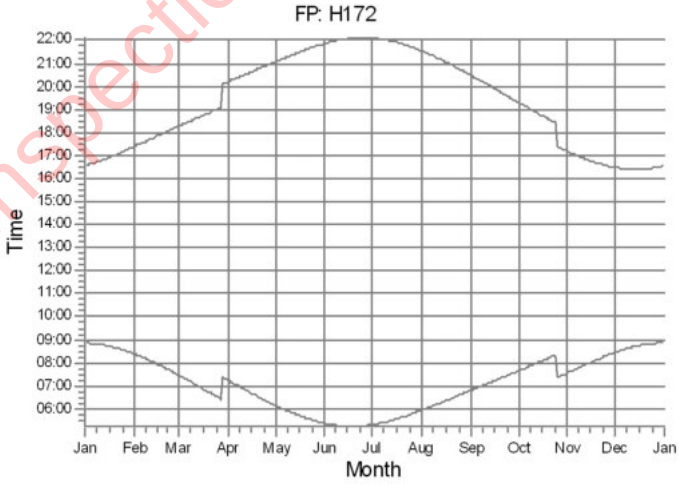
FN: H170



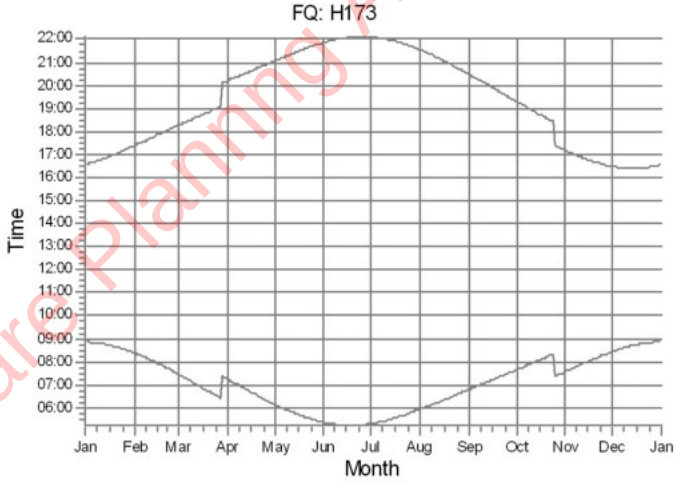
FO: H171



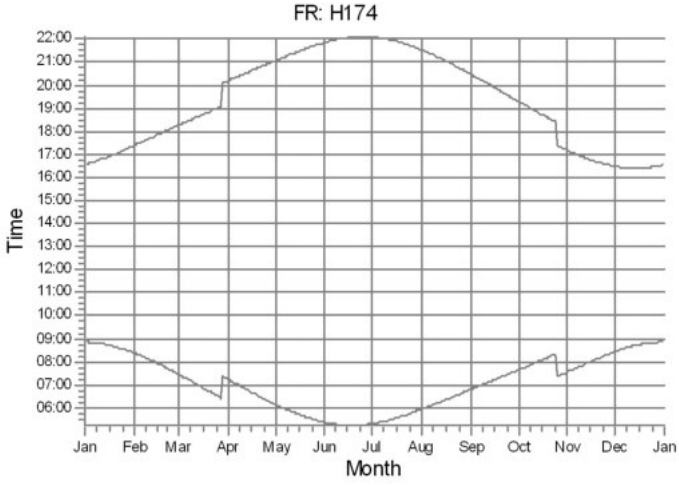
FP: H172



FQ: H173



FR: H174



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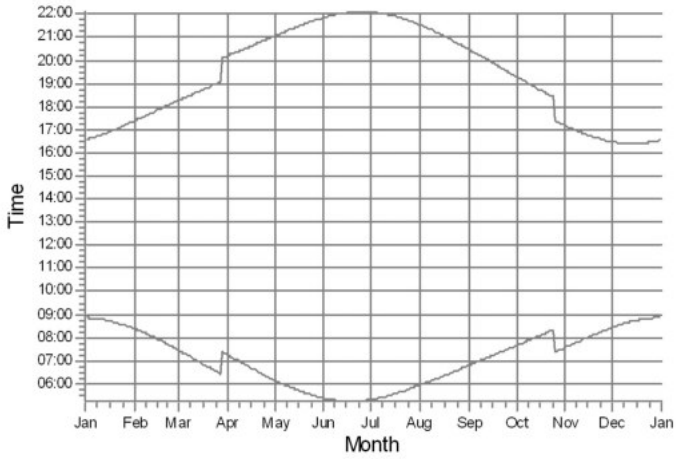
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case

FS: H175



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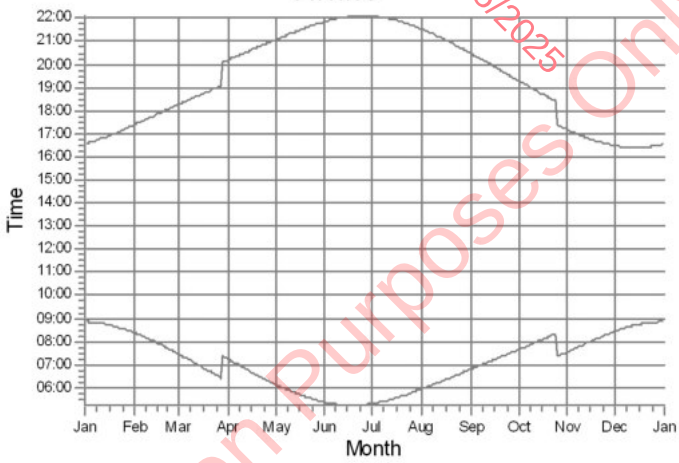
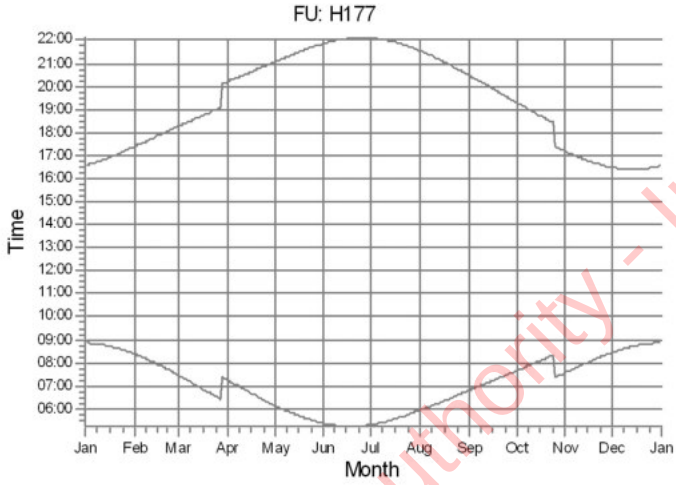
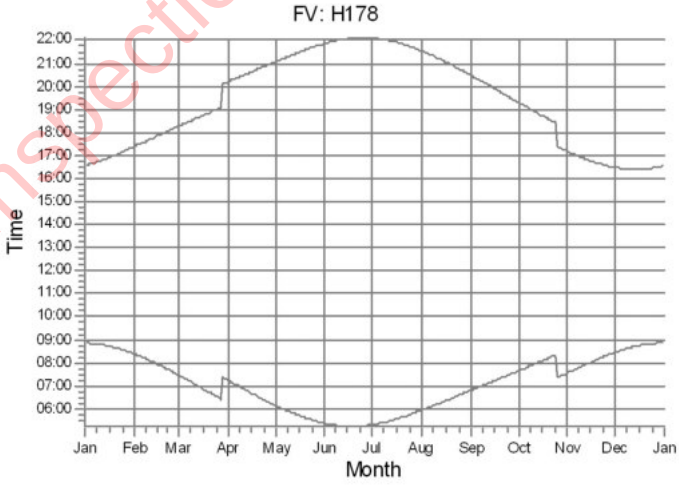


FU: H177



FV: H178



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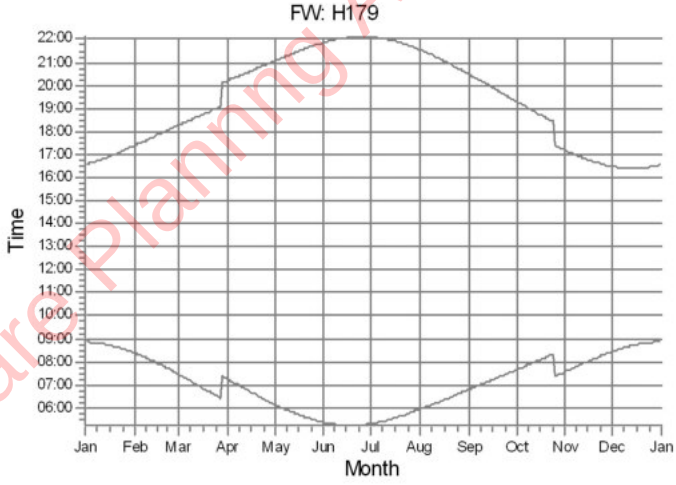
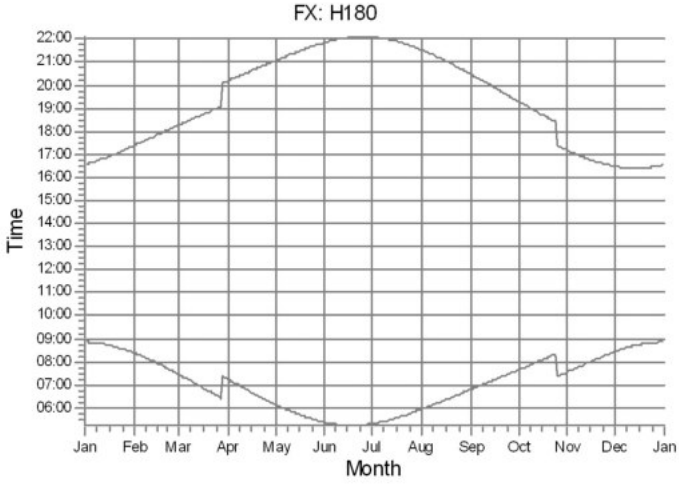


FX: H180



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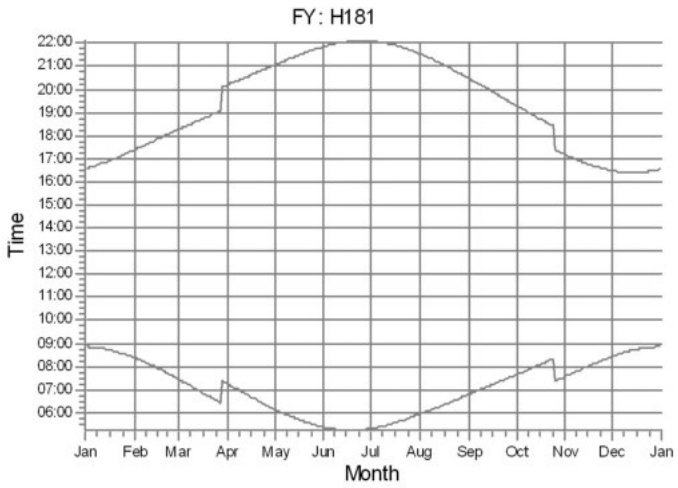
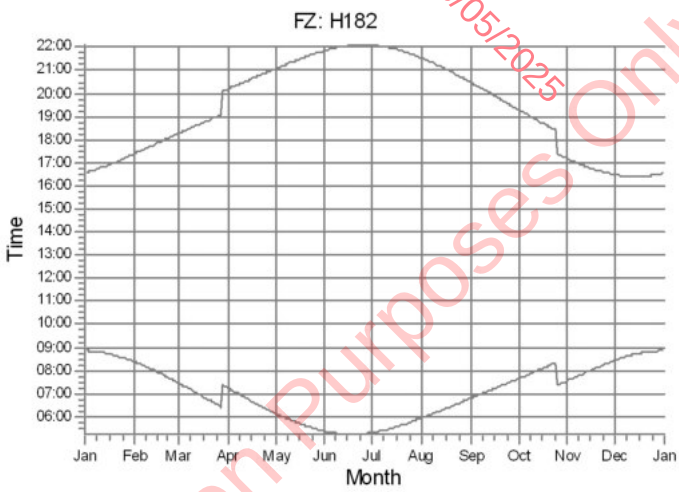
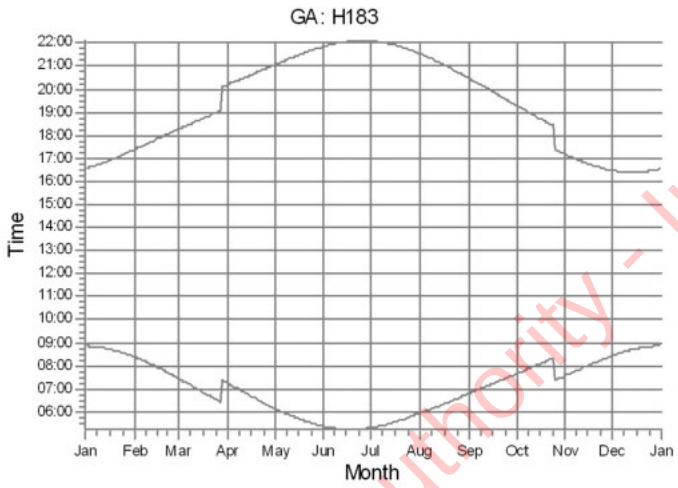
SHADOW - Calendar, graphical

Calculation: 6778 Moanmore Lower Only Worst Case







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Calculated:
16/12/2024 16:00/4.0.552

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SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 1 - Moanmore Lower T1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June
1	08:50 09:23-10:16/53 10:26-11:11/45 16:34 14:43-15:58/75	08:22 15:59-16:52/53 09:51-10:12/21 17:23 08:49-09:29/40 15:32-15:58/26	07:27 07:51-08:00/9 18:16 16:40-17:27/47	07:15 07:38-07:46/8 20:12 19:00-19:03/3	06:08 19:42-20:35/53 21:04	05:22 05:51-06:08/17 21:52 20:22-21:18/56
2	08:50 09:23-10:17/54 10:27-11:11/44 16:35 14:43-15:58/75	08:21 15:59-16:54/55 09:54-10:08/14 17:25 08:47-09:29/42 15:35-15:56/21	07:25 07:49-08:00/11 18:18 16:41-17:27/46	07:13 19:45-19:47/2 20:13 07:36-07:46/10	06:07 19:43-20:37/54 21:06	05:21 05:50-06:08/18 21:53 20:23-21:19/56
3	08:50 09:22-10:17/55 10:27-11:11/44 16:36 14:45-16:00/75	08:19 16:00-16:56/56 15:39-15:54/15 17:27 08:46-09:30/44	07:23 07:47-08:00/13 18:20 16:43-17:26/43	07:10 19:44-19:48/4 20:15 07:33-07:45/12	06:05 19:43-20:39/56 21:08	05:20 05:50-06:08/18 21:54 20:25-21:21/56
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Potential sun hours	256	276	367	418	489	503
Sum of minutes with flicker	4876	2797	1301	795	1963	2325

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Clare Planning Authority - Rejection Purposes Only!

RECEIVED: 09/05/2025
Clare Planning Authority - Inspection Purposes Only!

SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 1 - Moanmore Lower T1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July	August	September	October	November	December
1	05:18 20:37-21:32/55 22:06 05:50-06:13/23	05:56 19:59-21:03/64 21:33	06:48 19:56-20:01/5 20:29	07:38 08:04-08:20/16 19:18 18:28-18:50/22	07:34 15:33-16:40/67 17:10 08:02-08:53/51	08:26 08:59-10:02/63 10:17-10:51/34 16:28 14:40-15:54/74
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22	05:41 06:12-06:15/3 21:48 20:16-21:15/59	06:31 19:50-20:23/33 20:51	07:23 18:28-19:10/42 19:39	08:15 17:09-18:01/52 18:30 08:43-09:21/38	08:12 08:44-09:58/74 16:37 14:55-16:04/69	08:48 09:22-10:11/49 10:20-11:07/47 16:26 14:35-15:50/75
23	05:43 06:13-06:14/1 21:46 20:15-21:15/60	06:32 19:51-20:21/30 20:49	07:25 18:28-19:09/41 19:37	08:17 17:09-17:59/50 16:51-17:01/10 18:28 08:44-09:24/40	08:13 08:45-09:58/73 16:36 14:54-16:02/68	08:49 09:22-10:11/49 10:20-11:08/48 16:26 14:35-15:50/75
24	05:44 20:14-21:13/59 21:45	06:34 19:51-20:19/28 20:47	07:26 18:28-19:07/39 19:34	08:19 17:07-17:56/49 16:46-17:05/19 18:26 08:46-09:29/43	08:15 08:47-09:59/72 10:27-10:35/8 16:35 14:54-16:01/67	08:49 09:23-10:12/49 10:20-11:08/48 16:27 14:35-15:50/75
25	05:45 20:10-21:13/63 21:44	06:36 19:52-20:17/25 20:45	07:28 18:27-19:04/37 19:32	07:21 15:43-16:54/71 17:24 07:48-08:31/43	08:17 08:49-10:00/71 10:24-10:40/16 16:33 14:54-16:00/66	08:49 09:23-10:13/50 10:22-11:09/47 16:27 14:37-15:51/74
26	05:47 20:07-21:11/64 21:42	06:38 19:52-20:14/22 20:42	07:30 08:00-08:08/8 19:30 18:27-19:02/35	07:23 15:41-16:52/71 17:22 07:50-08:33/43	08:18 08:51-10:00/69 10:22-10:43/21 16:32 14:55-15:59/64	08:50 09:23-10:13/50 10:22-11:09/47 16:28 14:37-15:52/75
27	05:48 20:05-21:09/64 21:41	06:39 19:53-20:12/19 20:40	07:31 07:58-08:10/12 19:27 18:27-19:00/33	07:24 15:39-16:50/71 17:20 07:52-08:34/42	08:20 08:53-10:01/68 10:21-10:45/24 16:32 14:55-15:58/63	08:50 09:23-10:13/50 10:22-11:09/47 16:29 14:38-15:52/74
28	05:50 20:04-21:08/64 21:39	06:41 19:55-20:11/16 20:38	07:33 07:59-08:13/14 19:25 18:27-18:58/31	07:26 15:37-16:48/71 17:18 07:54-08:35/41	08:22 08:54-10:01/67 10:19-10:47/28 16:31 14:46-15:56/70	08:50 09:23-10:14/51 10:23-11:09/46 16:30 14:38-15:53/75
29	05:51 20:02-21:06/64 21:38	06:43 19:55-20:08/13 20:36	07:35 08:00-08:14/14 19:22 18:27-18:55/28	07:28 15:36-16:46/70 17:16 07:56-08:46/50	08:23 08:56-10:02/66 10:18-10:49/31 16:30 14:43-15:56/73	08:50 09:23-10:14/51 10:23-11:10/47 16:30 14:39-15:54/75
30	05:53 20:01-21:06/65 21:36	06:44 19:57-20:06/9 20:33	07:37 08:02-08:16/14 19:20 18:27-18:52/25	07:30 15:35-16:44/69 17:14 07:58-08:49/51	08:25 08:58-10:02/64 10:18-10:50/32 16:29 14:42-15:55/73	08:50 09:23-10:15/52 10:24-11:10/46 16:31 14:40-15:55/75
31	05:55 19:59-21:04/65 21:34	06:46 19:56-20:03/7 20:31		07:32 15:34-16:42/68 17:12 08:00-08:52/52		08:50 09:23-10:15/52 10:25-11:10/45 16:32 14:41-15:56/75
Potential sun hours	506	456	381	330	263	240
Sum of minutes with flicker	2146	1303	885	2293	4169	5320

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

RECEIVED: 09/05/2025

SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 2 - Moanmore Lower T2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June
1	08:50 09:23-10:40/77	08:22 08:49-08:57/8	07:27 07:51-08:15/24	07:15 19:13-19:45/32	06:09 06:34-06:49/15 20:13-20:21/8	05:22 05:51-06:05/14 20:46-20:57/11
	16:34 15:24-15:58/34	17:23 16:14-16:52/38	18:16 17:38-17:49/11	20:12	21:04 20:31-20:35/4	21:52 21:06-21:18/12
2	08:50 09:23-10:40/77	08:21 08:47-08:57/10 16:16-16:30/14	07:25 07:49-08:13/24	07:13 19:14-19:47/33	06:07 06:32-06:48/16	05:21 05:50-06:06/16 20:47-20:55/8
	16:35 15:24-15:58/34	17:25 16:31-16:54/23	18:18 17:38-17:51/13	20:13	21:06 20:32-20:37/5	21:53 21:07-21:19/12
3	08:50 09:22-10:40/78	08:19 08:46-08:57/11 16:20-16:28/8	07:23 07:47-08:10/23	07:10 19:15-19:48/33	06:05 06:31-06:47/16	05:20 05:50-06:07/17
	16:36 15:25-16:00/35	17:27 16:32-16:56/24	18:20 17:38-17:54/16	20:15	21:08 20:31-20:39/8	21:54 21:09-21:21/12
4	08:50 09:22-10:40/78	08:17 08:44-08:57/13	07:21 07:44-08:07/23	07:08 19:18-19:51/33	06:03 06:32-06:45/13	05:19 05:49-06:07/18
	16:37 15:27-16:02/35	17:28 16:32-16:58/26	18:21 17:37-17:55/18	20:17	21:09 20:31-20:40/9	21:55 21:09-21:21/12
5	08:50 09:21-10:39/78	08:16 08:42-08:56/14	07:18 07:43-08:01/18	07:06 19:22-19:53/31	06:01 06:33-06:44/11	05:19 05:49-06:08/19
	16:38 15:27-16:02/35	17:30 16:32-17:00/28	18:23 17:37-17:57/20	20:19	21:11 20:31-20:41/10	21:56 21:10-21:22/12
6	08:49 09:21-10:39/78	08:14 08:40-08:55/15	07:16 07:44-08:00/16	07:03 19:22-19:54/32	05:59 06:36-06:42/6	05:18 05:48-06:08/20
	16:40 15:29-16:04/35	17:32 16:33-17:02/29	18:25 17:37-17:59/22	20:20	21:13 20:31-20:43/12	21:57 21:14-21:23/9
7	08:49 09:20-10:38/78	08:12 08:38-08:54/16	07:14 07:45-07:57/12	07:01 19:25-19:56/31	05:57 20:32-20:45/13	05:17 05:47-06:08/21
	16:41 15:31-16:05/34	17:34 16:33-17:04/31	18:27 17:37-18:00/23	20:22	21:14	21:58 21:14-21:24/10
8	08:48 09:21-10:37/76	08:10 08:36-08:55/19	07:11 07:48-07:55/7	06:59 19:28-19:57/29	05:55 20:33-20:46/13	05:17 05:47-06:09/22
	16:42 15:33-16:07/34	17:36 16:34-17:06/32	18:29 17:38-18:02/24	20:24	21:16	21:59 21:15-21:25/10
9	08:48 09:21-10:35/74	08:08 08:34-08:55/21	07:09 17:39-18:01/22	06:56 19:28-19:58/30	05:53 20:33-20:47/14	05:16 05:47-06:10/23
	16:44 15:34-16:09/35	17:38 16:35-17:08/33	18:31	20:26	21:18	22:00 21:16-21:26/10
10	08:47 09:22-10:27/65 15:35-16:10/35	08:07 08:32-08:55/23	07:07 17:39-17:59/20	06:54 19:30-20:00/30	05:52 20:35-20:50/15	05:16 05:46-06:10/24
	16:45 10:29-10:32/3	17:40 16:36-17:10/34	18:32	20:27	21:20	22:00 21:16-21:26/10
11	08:47 09:22-10:27/65	08:05 08:30-08:55/25	07:04 17:41-17:58/17	06:52 19:33-20:02/29	05:50 20:34-20:51/17	05:15 05:46-06:10/24
	16:46 15:36-16:11/35	17:42 16:37-17:13/36	18:34	20:29	21:21	22:01 21:17-21:27/10
12	08:46 09:22-10:26/64	08:03 08:28-08:54/26	07:02 17:43-17:54/11	06:49 19:35-20:04/29	05:48 20:34-20:53/19	05:15 05:46-06:11/25
	16:48 15:38-16:13/35	17:44 16:40-17:15/35	18:36	20:31	21:23	22:02 21:18-21:28/10
13	08:45 09:24-10:26/62	08:01 08:26-08:54/28	07:00	06:47 19:36-20:05/29	05:47 20:34-20:54/20	05:15 05:46-06:11/25
	16:49 15:39-16:14/35	17:46 16:43-17:17/34	18:38	20:33	21:24	22:03 21:18-21:28/10
14	08:44 09:24-10:24/60	07:59 08:24-08:53/29	06:57	06:45 19:38-20:07/29	05:45 20:33-20:55/22	05:14 05:45-06:11/26
	16:51 15:41-16:16/35	17:48 16:52-17:19/27	18:40	20:35	21:26	22:03 21:19-21:29/10
15	08:44 09:24-10:21/57	07:57 08:22-08:52/30	06:55 07:18-07:22/4	06:43 19:40-20:09/29	05:43 20:34-20:57/23	05:14 05:45-06:11/26
	16:53 15:43-16:18/35	17:50 16:55-17:21/26	18:41	20:36	21:28	22:04 21:20-21:29/9
16	08:43 09:25-10:18/53	07:55 08:20-08:51/31	06:53 07:16-07:24/8	06:40 19:41-20:11/30	05:42 20:34-20:58/24	05:14 05:45-06:11/26
	16:54 15:45-16:20/35	17:51 16:56-17:23/27	18:43	20:38	21:29	22:04 21:21-21:30/9
17	08:42 09:25-10:17/52	07:53 08:18-08:50/32	06:50 07:14-07:25/11	06:38 19:44-20:13/29	05:40 20:34-20:59/25	05:14 05:45-06:12/27
	16:56 15:47-16:22/35	17:53 16:56-17:25/29	18:45	20:40	21:31	22:05 21:22-21:30/8
18	08:41 09:26-10:15/49	07:51 08:16-08:47/31	06:48 07:11-07:25/14	06:36 19:55-20:14/19	05:39 20:35-21:01/26	05:14 05:45-06:12/27
	16:58 15:49-16:24/35	17:55 16:57-17:26/29	18:47	20:42	21:32	22:05 21:23-21:30/7
19	08:40 09:27-10:11/44	07:49 08:14-08:44/30	06:46 07:09-07:26/17	06:34 19:57-20:15/21	05:37 20:35-21:03/28	05:14 05:45-06:12/27
	16:59 15:51-16:26/35	17:57 16:56-17:25/29	18:49 18:19-18:23/4	20:43	21:34	22:06 21:23-21:31/8
20	08:39 09:28-10:09/41 16:05-16:28/23	07:47 08:11-08:42/31	06:43 07:07-07:27/20	06:32 19:54-20:17/23	05:36 20:35-21:03/28	05:14 05:45-06:12/27
	17:01 15:54-16:04/10	17:59 16:57-17:24/27	18:50 18:17-18:24/7	20:45	21:35	22:06 21:23-21:31/8
21	08:37 09:29-10:07/38 16:04-16:29/25	07:45 08:09-08:38/29	06:41 07:04-07:26/22	06:29 19:55-20:19/24	05:34 06:02-06:03/1	05:14 05:46-06:13/27
	17:03 15:58-15:59/1	18:01 16:58-17:23/25	18:52 18:16-18:26/10	20:47	21:37 20:36-21:05/29	22:06 21:25-21:32/7
22	08:36 09:30-10:06/36	07:43 08:07-08:33/26	06:39 07:02-07:27/25	06:27 19:56-20:20/24	05:33 06:01-06:04/3	05:14 05:46-06:13/27
	17:04 16:05-16:32/27	18:03 17:00-17:22/22	18:54 18:15-18:28/13	20:49	21:38 20:36-21:07/31	22:06 21:25-21:32/7
23	08:35 09:32-10:02/30	07:40 08:05-08:32/27	06:36 06:59-07:26/27	06:25 19:57-20:22/25	05:32 06:00-06:04/4	05:15 05:46-06:13/27
	17:06 16:05-16:33/28	18:05 17:01-17:21/20	18:56 18:13-18:30/17	20:50	21:40 20:37-21:08/31	22:07 21:24-21:32/8
24	08:34 09:32-09:55/23	07:38 08:03-08:30/27	06:34 06:57-07:25/28	06:23 06:47-06:48/1	05:30 05:59-06:05/6	05:15 05:47-06:14/27
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25	08:32 09:34-09:55/21	07:36 08:00-08:27/27	06:31 06:57-07:25/28	06:21 06:45-06:49/4	05:29 05:58-06:05/7	05:15 05:47-06:14/27
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26	08:31 16:07-16:40/33	07:34 07:58-08:20/22	06:29 06:56-07:24/28	06:19 06:43-06:49/6	05:28 05:56-06:05/9	05:16 05:47-06:14/27
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27	08:30 16:07-16:41/34	07:32 07:56-08:19/23	06:27 06:57-07:23/26	06:17 06:41-06:49/8	05:27 05:55-06:05/10 20:39-21:01/22	05:16 05:48-06:14/26
	17:13 09:38-09:50/12	18:12 17:41-17:46/5	19:03 18:12-18:37/25	20:57 20:07-20:29/22	21:45 21:03-21:12/9	22:07 21:23-21:32/9
28	08:28 16:09-16:44/35	07:29 07:54-08:18/24	06:24 06:57-07:21/24	06:15 06:39-06:49/10	05:26 05:55-06:05/10 20:40-21:00/20	05:17 05:48-06:14/26
	17:15	18:14 17:39-17:47/8	19:05 18:11-18:38/27	20:59 20:08-20:27/19	21:47 21:03-21:13/10	22:06 21:22-21:32/10
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	17:17 16:09-16:45/36		20:06 19:11-19:40/29	21:01 20:09-20:26/17	21:48 21:05-21:15/10	22:06 21:23-21:32/9
30	08:25 08:53-08:56/3		07:20 08:00-08:18/18	06:11 06:35-06:48/13 20:10-20:24/14	05:24 05:53-06:05/12 20:43-20:59/16	05:18 05:49-06:14/25
	17:19 16:11-16:47/36		20:08 19:12-19:42/30	21:02 20:32-20:33/1	21:49 21:05-21:16/11	22:06 21:22-21:31/9
31	08:24 08:51-08:57/6		07:17 08:02-08:14/12		05:23 05:52-06:05/13 20:44-20:58/14	
	17:21 16:12-16:50/38		20:10 19:12-19:43/31		21:50 21:06-21:17/11	
Potential sun hours	256	276	367	418	489	503
Sum of minutes with flicker	2542	1370	953	849	834	1019

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Clare Planning Authority Inspection Purposes Only!

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RECEIVED: 09/05/2025

SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 2 - Moanmore Lower T2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July	August	September	October	November	December
1	05:18 05:50-06:14/24 22:06 21:22-21:31/9	05:56 20:45-21:03/18 21:33	06:48 19:32-20:01/29 20:29	07:38 18:24-18:32/8 19:18	07:34 08:02-08:24/22 17:10 16:05-16:40/35	08:26 09:04-10:09/65 16:28 15:19-15:54/35
2	05:19 05:51-06:15/24 22:05 21:22-21:31/9	05:58 20:45-21:00/15 21:31	06:49 19:29-19:59/30 20:27	07:40 18:20-18:34/14 19:15	07:36 08:04-08:24/20 17:08 16:04-16:38/34	08:28 09:05-10:11/66 16:27 15:18-15:53/35
3	05:20 05:51-06:14/23 22:05 21:21-21:30/9	05:59 20:44-20:59/15 21:29	06:51 19:26-19:56/30 20:24	07:42 18:18-18:36/18 19:13	07:37 08:06-08:24/18 17:06 16:03-16:36/33	08:29 09:04-10:18/74 16:27 15:17-15:52/35
4	05:21 05:52-06:14/22 22:05 21:21-21:30/9	06:01 20:43-20:57/14 21:27	06:53 19:25-19:55/30 20:22	07:43 18:16-18:38/22 19:11	07:39 08:08-08:24/16 17:04 16:03-16:34/31	08:30 09:05-10:21/76 16:26 15:17-15:52/35
5	05:21 05:53-06:15/22 22:04 21:21-21:30/9	06:03 20:42-20:56/14 21:26	06:54 19:22-19:53/31 20:20	07:45 18:15-18:39/24 19:08	07:41 08:10-08:25/15 17:03 16:02-16:32/30	08:32 09:05-10:23/78 16:26 15:16-15:50/34
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Potential sun hours	506	456	381	330	263	240
Sum of minutes with flicker	993	725	950	1293	1803	3390

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Clare Planning Authority - Not to be used for Planning Purposes Only!

Licensed user:
Jennings O'Donovan
Finisklin Business Park
IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

RECEIVED: 09/05/2025
Clare Planning Authority - Inspection Purposes Only!

SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 3 - Moanmore Lower T3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	January	February	March	April	May	June
1	08:50 15:57-15:58/1 09:23-09:59/36 16:34 15:00-15:51/51 14:51-14:59/8	08:22 09:02-09:15/13 17:23 16:21-16:52/31	07:27 17:06-17:49/43 18:16	07:15 18:41-19:45/64 20:12	06:08 20:29-20:35/6 19:46-20:19/33 21:04 06:34-07:02/28	05:22 20:30-21:18/48 21:52 05:51-06:09/18
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26	08:31 08:59-09:31/32 17:12 16:22-16:40/18	07:34 17:09-17:43/34 18:10	06:29 17:28-18:35/67 19:01	06:19 06:43-07:07/24 20:56 19:35-20:23/48	05:28 20:31-21:11/40 21:44 05:57-06:18/21	05:16 20:34-21:32/58 22:07 05:47-06:09/22
27	08:30 08:57-09:28/31 17:13 16:21-16:41/20	07:32 17:08-17:46/38 18:12	06:27 17:31-18:37/66 19:03	06:17 06:41-07:06/25 20:57 19:41-20:23/42	05:27 20:31-21:12/41 21:45 05:56-06:17/21	05:16 20:35-21:32/57 22:07 05:48-06:10/22
28	08:28 08:58-09:26/28 17:15 16:22-16:44/22	07:29 17:06-17:47/41 18:14	06:24 17:33-18:38/65 19:05	06:15 06:39-07:05/26 20:59 19:45-20:22/37	05:26 20:30-21:13/43 21:47 05:55-06:16/21	05:17 20:35-21:32/57 22:06 05:48-06:10/22
29	08:27 08:58-09:23/25 17:17 16:21-16:45/24		07:22 18:35-19:40/65 20:06	06:12 06:37-07:04/27 21:01 19:45-20:21/36	05:25 20:31-21:15/44 21:48 05:54-06:14/20	05:17 20:35-21:32/57 22:06 05:49-06:11/22
30	08:25 09:00-09:22/22 17:19 16:20-16:47/27		07:20 18:37-19:42/65 20:08	06:10 20:30-20:33/3 19:46-20:20/34 21:02 06:35-07:03/28	05:24 20:31-21:16/45 21:49 05:53-06:09/16	05:18 20:35-21:31/56 22:06 05:49-06:11/22
31	08:24 09:01-09:17/16 17:21 16:21-16:50/29		07:17 18:38-19:43/65 20:10		05:23 20:31-21:17/46 21:50 05:52-06:09/17	
Potential sun hours	256	276	367	418	488	503
Sum of minutes with flicker	2480	1050	2066	1885	1558	2312

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
6778 Moanmore Lower WF

Description:
3 no. turbine Wind Farm, Moanmore Lower, Kilrush, Co. Clare
Assessment of shadow flicker from the proposed Moanmore Lower WF only

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IE-F91 RHH9 Sligo
+353719161416
Kathryn Feeney / kfeeney@jodireland.com
Calculated:
16/12/2024 16:00/4.0.552

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SHADOW - Calendar per WTG

Calculation: 6778 Moanmore Lower Only Worst Case **WTG:** 3 - Moanmore Lower T3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
229	231	210	320	200	640	608	691	568	658	724	1,086	671	733	661	530	8,760

	July	August	September	October	November	December
1	05:18 20:36-21:31/55 22:06 05:50-06:12/22	05:56 20:37-21:03/26 21:33 06:26-06:35/9	06:48 18:57-20:01/64 20:29	07:38 08:04-08:16/12 19:18 17:44-18:50/66	07:34 08:02-08:08/6 17:10 15:52-16:29/37	08:26 15:41-15:54/13 14:48-15:33/45 16:28 08:59-09:41/42
2	05:19 20:36-21:32/56 22:05 05:51-06:13/22	05:58 20:36-21:00/24 21:31 06:27-06:35/8	06:49 18:55-19:59/64 20:27	07:40 08:06-08:16/10 19:15 17:43-18:47/64	07:36 08:04-08:08/4 17:08 15:52-16:29/37	08:28 15:42-15:53/11 14:48-15:35/47 16:27 09:01-09:42/41
3	05:20 20:36-21:30/54 22:05 05:51-06:12/21	05:59 06:29-06:35/6 21:29 20:36-20:59/23	06:51 18:52-19:56/64 20:24	07:42 08:07-08:15/8 19:13 17:42-18:45/63	07:37 08:06-08:07/1 17:06 15:51-16:30/39	08:29 15:42-15:52/10 14:48-15:35/47 16:27 09:02-09:43/41
4	05:21 20:36-21:30/54 22:05 05:52-06:13/21	06:01 06:30-06:35/5 21:27 20:36-20:57/21	06:53 18:51-19:55/64 20:22	07:43 08:09-08:14/5 19:11 17:41-18:43/62	07:39 15:51-16:30/39 17:04	08:30 15:43-15:52/9 14:48-15:36/48 16:26 09:04-09:44/40
5	05:21 20:37-21:30/53 22:04 05:53-06:14/21	06:03 06:32-06:35/3 06:53-07:00/7 21:26 20:35-20:55/20 20:09-20:15/6	06:54 18:49-19:53/64 20:20	07:45 08:11-08:13/2 19:08 17:41-18:41/60	07:41 15:51-16:30/39 17:03	08:32 15:43-15:50/7 14:48-15:37/49 16:26 09:05-09:45/40
6	05:22 20:37-21:30/53 22:03 05:54-06:15/21	06:04 06:33-06:34/1 06:50-07:03/13 21:24 20:36-20:54/18 20:05-20:19/14	06:56 18:47-19:50/63 20:17	07:47 17:41-18:38/57 19:06	07:43 15:51-16:30/39 17:01	08:33 15:44-15:50/6 14:49-15:38/49 16:25 09:07-09:46/39
7	05:23 20:37-21:29/52 22:03 05:55-06:15/20	06:06 20:36-20:53/17 20:03-20:22/19 21:22 06:48-07:05/17	06:58 18:44-19:48/64 20:15	07:49 17:40-18:35/55 19:04	07:45 15:51-16:28/37 16:59	08:34 15:44-15:50/6 14:49-15:38/49 16:25 09:08-09:46/38
8	05:24 20:38-21:29/51 22:02 05:56-06:16/20	06:07 20:36-20:50/14 20:01-20:24/23 21:20 06:46-07:06/20	06:59 18:41-19:45/64 20:13	07:50 17:39-18:33/54 19:01	07:47 15:51-16:26/35 16:57	08:36 15:44-15:49/5 09:09-09:47/38 16:24 14:49-15:38/49
9	05:25 20:37-21:27/50 22:02 05:57-06:16/19	06:09 20:37-20:49/12 19:59-20:25/26 21:18 06:46-07:07/21	07:01 18:39-19:43/64 20:10	07:52 17:39-18:31/52 18:59	07:48 08:34-08:44/10 16:56 15:51-16:24/33	08:37 15:46-15:49/3 09:11-09:48/37 16:24 14:50-15:40/50
10	05:26 20:37-21:27/50 22:01 05:58-06:17/19	06:11 20:37-20:47/10 19:57-20:26/29 21:16 06:44-07:08/24	07:03 18:37-19:41/64 20:08	07:54 17:40-18:29/49 18:57	07:50 08:32-08:46/14 16:54 15:51-16:22/31	08:38 15:46-15:48/2 09:12-09:49/37 16:24 14:50-15:40/50
11	05:27 20:38-21:26/48 22:00 05:59-06:17/18	06:12 20:38-20:45/7 19:56-20:27/31 21:14 06:44-07:10/26	07:04 18:33-19:38/65 20:05	07:56 17:40-18:27/47 18:54	07:52 08:31-08:49/18 16:52 15:52-16:21/29	08:39 15:47-15:48/1 09:13-09:49/36 16:24 14:50-15:41/51 14:41-14:48/7
12	05:28 20:39-21:26/47 21:59 06:00-06:18/18	06:14 20:38-20:43/5 19:55-20:28/33 21:12 06:42-07:11/29	07:06 18:31-19:36/65 20:03	07:57 17:39-18:23/44 18:52	07:54 08:30-08:53/23 16:51 15:52-16:19/27	08:40 15:47-15:48/1 09:14-09:50/36 16:24 14:40-15:41/61
13	05:30 20:39-21:25/46 21:58 06:01-06:18/17	06:16 20:39-20:41/2 19:54-20:29/35 21:10 06:44-07:12/28	07:08 18:27-19:33/66 20:01	07:59 17:39-18:21/42 18:50	07:56 08:30-08:55/25 16:49 15:53-16:17/24	08:41 14:40-15:42/62 16:23 09:15-09:50/35
14	05:31 20:39-21:24/45 21:57 06:02-06:22/20	06:17 06:46-07:13/27 21:08 19:53-20:29/36	07:09 18:25-19:31/66 19:58	08:01 17:40-18:19/39 18:48	07:58 08:29-08:58/29 16:48 15:54-16:16/22	08:42 14:39-15:42/63 16:23 09:16-09:51/35
15	05:32 20:40-21:23/43 21:56 06:03-06:24/21	06:19 06:47-07:13/26 21:06 19:52-20:29/37	07:11 18:24-19:29/65 19:56	08:03 17:41-18:17/36 18:45	07:59 08:30-09:01/31 16:46 15:54-16:14/20	08:43 14:39-15:43/64 16:24 09:17-09:52/35
16	05:33 20:40-21:22/42 21:55 06:04-06:25/21	06:21 06:49-07:14/25 21:04 19:46-20:30/44	07:13 18:21-19:26/65 19:53	08:04 17:41-18:15/34 18:43	08:01 08:32-09:04/32 16:45 15:55-16:12/17	08:44 14:39-15:43/64 16:24 09:18-09:52/34
17	05:34 20:40-21:21/41 21:54 06:05-06:26/21	06:22 06:50-07:14/24 21:02 19:41-20:30/49	07:14 18:17-19:24/67 19:51	08:06 17:42-18:13/31 18:41	08:03 15:47-15:52/5 15:56-16:11/15 16:43 08:34-09:07/33	08:45 14:39-15:44/65 16:24 09:19-09:53/34
18	05:36 20:40-21:20/40 21:53 06:07-06:28/21	06:24 06:52-07:14/22 21:00 19:38-20:30/52	07:16 18:15-19:22/67 19:49	08:08 17:43-18:10/27 18:39	08:05 15:44-15:55/11 15:57-16:09/12 16:42 08:36-09:09/33	08:46 14:39-15:44/65 16:24 09:19-09:53/34
19	05:37 20:42-21:20/38 21:52 06:08-06:28/20	06:26 19:36-20:29/53 20:58 06:53-07:13/20	07:18 18:12-19:19/67 19:46	08:10 08:43-08:52/9 18:37 17:43-18:07/24	08:07 15:43-15:57/14 15:58-16:08/10 16:41 08:38-09:12/34 14:59-15:08/9	08:46 14:39-15:45/66 16:24 09:20-09:54/34
20	05:38 20:42-21:18/36 21:50 06:09-06:29/20	06:27 19:34-20:27/53 20:56 06:55-07:14/19	07:20 18:10-19:17/67 19:44	08:12 08:41-08:54/13 18:34 17:45-18:05/20	08:08 15:42-15:59/17 16:00-16:07/7 16:39 08:40-09:15/35 14:56-15:12/16	08:47 14:40-15:45/65 16:25 09:21-09:54/33
21	05:40 20:42-21:17/35 21:49 06:10-06:29/19	06:29 19:32-20:25/53 20:53 06:57-07:14/17	07:21 18:09-19:14/65 19:42	08:13 08:40-08:54/14 18:32 17:46-18:03/17	08:10 15:42-16:00/18 16:01-16:05/4 16:38 08:42-09:17/35 14:54-15:14/20	08:48 14:40-15:45/65 16:25 09:21-09:54/33
22	05:41 20:42-21:15/33 21:48 06:12-06:30/18	06:31 19:31-20:23/52 20:51 06:58-07:13/15	07:23 18:03-19:11/68 19:39	08:15 08:42-08:57/15 18:30 17:48-18:01/13	08:12 15:41-16:01/20 16:03-16:04/1 16:37 08:44-09:19/35 14:53-15:16/23	08:48 14:41-15:46/65 16:26 09:22-09:55/33
23	05:43 20:42-21:15/33 21:46 06:13-06:30/17	06:32 19:30-20:21/51 20:49 07:00-07:12/12	07:25 17:59-19:09/70 19:37	08:17 08:44-09:00/16 18:28 17:51-17:59/8	08:13 15:40-16:01/21 14:51-15:17/26 16:36 08:45-09:20/35	08:49 14:41-15:46/65 16:26 09:22-09:55/33
24	05:44 20:41-21:13/32 21:45 06:14-06:30/16	06:34 19:28-20:19/51 20:47 07:01-07:11/10	07:26 17:56-19:07/71 19:34	08:19 08:46-09:02/16 17:54-17:56/2 18:26 17:04-17:18/14	08:15 15:40-16:01/21 14:50-15:22/32 16:35 08:47-09:21/34	08:49 14:41-15:47/66 16:27 09:23-09:56/33
25	05:45 20:41-21:13/32 21:44 06:16-06:31/15	06:36 19:28-20:17/49 20:45 07:03-07:10/7	07:28 17:53-19:04/71 19:32 08:05-08:12/7	07:21 07:48-08:05/17 17:24 16:01-16:21/20	08:17 15:40-16:00/20 14:50-15:25/35 16:33 08:49-09:22/33	08:49 14:43-15:48/65 16:27 09:23-09:57/34
26	05:47 20:40-21:11/31 21:42 06:17-06:31/14	06:38 19:26-20:14/48 20:42 07:05-07:09/4	07:30 17:51-19:02/71 19:30 08:01-08:14/13	07:23 07:50-08:06/16 17:22 15:59-16:23/24	08:18 15:40-15:59/19 14:49-15:28/39 16:32 08:51-09:23/32	08:50 14:43-15:48/65 16:28 09:23-09:57/34
27	05:48 20:38-21:09/31 21:41 06:18-06:32/14	06:39 07:06-07:07/1 20:40 19:26-20:12/46	07:31 17:50-19:00/70 19:27 07:59-08:15/16	07:24 07:52-08:07/15 17:20 15:57-16:24/27	08:20 15:41-15:58/17 14:49-15:29/40 16:32 08:53-09:24/31	08:50 14:44-15:48/64 16:29 09:23-09:57/34
28	05:50 20:38-21:08/30 21:39 06:20-06:33/13	06:41 19:25-20:10/46 20:38	07:33 17:48-18:58/70 19:25 07:59-08:16/17	07:26 07:54-08:08/14 17:18 15:56-16:26/30	08:22 15:40-15:56/16 14:48-15:30/42 16:31 08:54-09:24/30 09:26-09:35/9	08:50 14:45-15:49/64 16:30 09:23-09:57/34
29	05:52 20:38-21:06/28 21:38 06:21-06:34/13	06:43 19:24-20:08/44 20:36	07:35 17:46-18:55/69 19:22 08:00-08:16/16	07:28 07:56-08:08/12 17:16 15:55-16:27/32	08:23 15:41-15:56/15 14:48-15:32/44 16:30 08:56-09:38/42	08:50 14:46-15:49/63 16:30 09:23-09:58/35
30	05:53 20:38-21:05/27 21:36 06:23-06:35/12	06:44 19:24-20:06/42 20:33 19:05-19:23/18	07:37 17:45-18:52/67 19:20 08:02-08:16/14	07:30 07:58-08:08/10 17:14 15:54-16:27/33	08:25 15:41-15:55/14 14:48-15:33/45 16:29 08:58-09:40/42	08:50 14:47-15:49/62 16:31 09:23-09:58/35
31	05:55 20:37-21:04/27 21:34 06:24-06:35/11	06:46 19:00-20:03/63 20:31		07:32 08:00-08:08/8 17:12 15:53-16:28/35		08:50 14:49-15:50/61 16:32 09:23-09:59/36
Potential sun hours	506	456	381	330	263	240
Sum of minutes with flicker	1858	1748	2074	1393	1839	3008

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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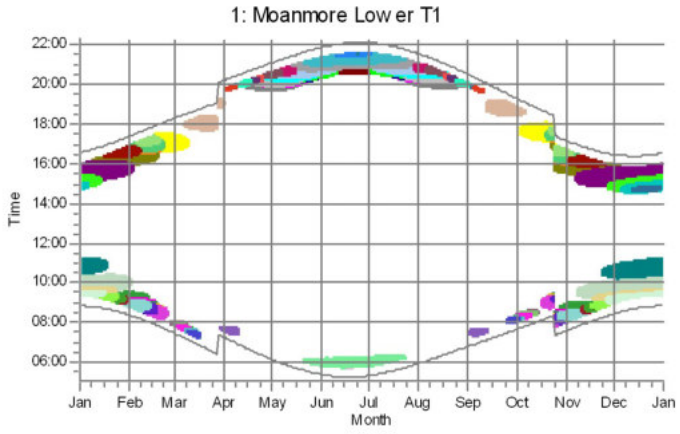
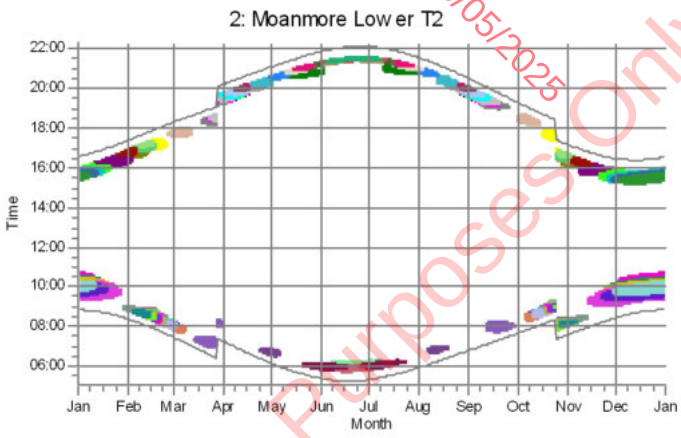
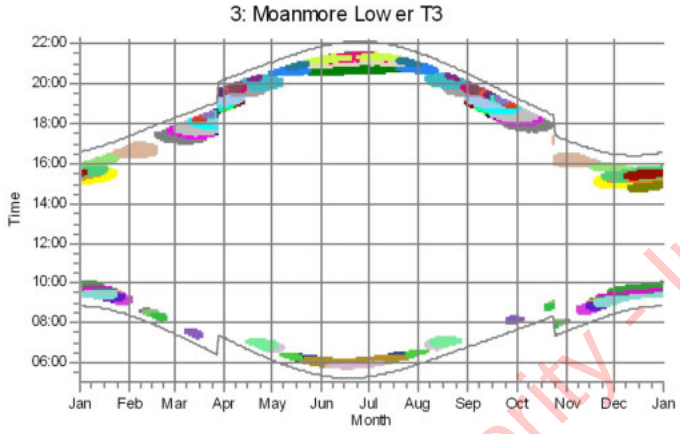
SHADOW - Calendar per WTG, graphical

Calculation: 6778 Moanmore Lower Only Worst Case







Shadow receptors

A: H1	J: H10	R: H18	Z: H26	AP: H42	BI: H61	BZ: H78	CO: H93	DA: H105	DY: H129	EP: H146
B: H2	K: H11	S: H19	AA: H27	AS: H45	BR: H70	CA: H79	CQ: H95	DD: H108	DZ: H130	EQ: H147
D: H4	L: H12	T: H20	AB: H28	AU: H47	BS: H71	CB: H80	CT: H98	DE: H109	EB: H132	ER: H148
E: H5	M: H13	U: H21	AC: H29	AV: H48	BT: H72	CD: H82	CU: H99	DG: H111	EC: H133	ES: H149
F: H6	N: H14	V: H22	AD: H30	AW: H49	BU: H73	CF: H84	CV: H100	DH: H112	EE: H135	EV: H152
G: H7	O: H15	W: H23	AE: H31	AX: H50	BW: H75	CG: H85	CX: H102	DK: H115	EF: H136	EX: H154
H: H8	P: H16	X: H24	AI: H35	AY: H51	BX: H76	CK: H89	CY: H103	DN: H118	EK: H141	
I: H9	Q: H17	Y: H25	AM: H39	BF: H58	BY: H77	CN: H92	CZ: H104	DU: H125	EL: H142	

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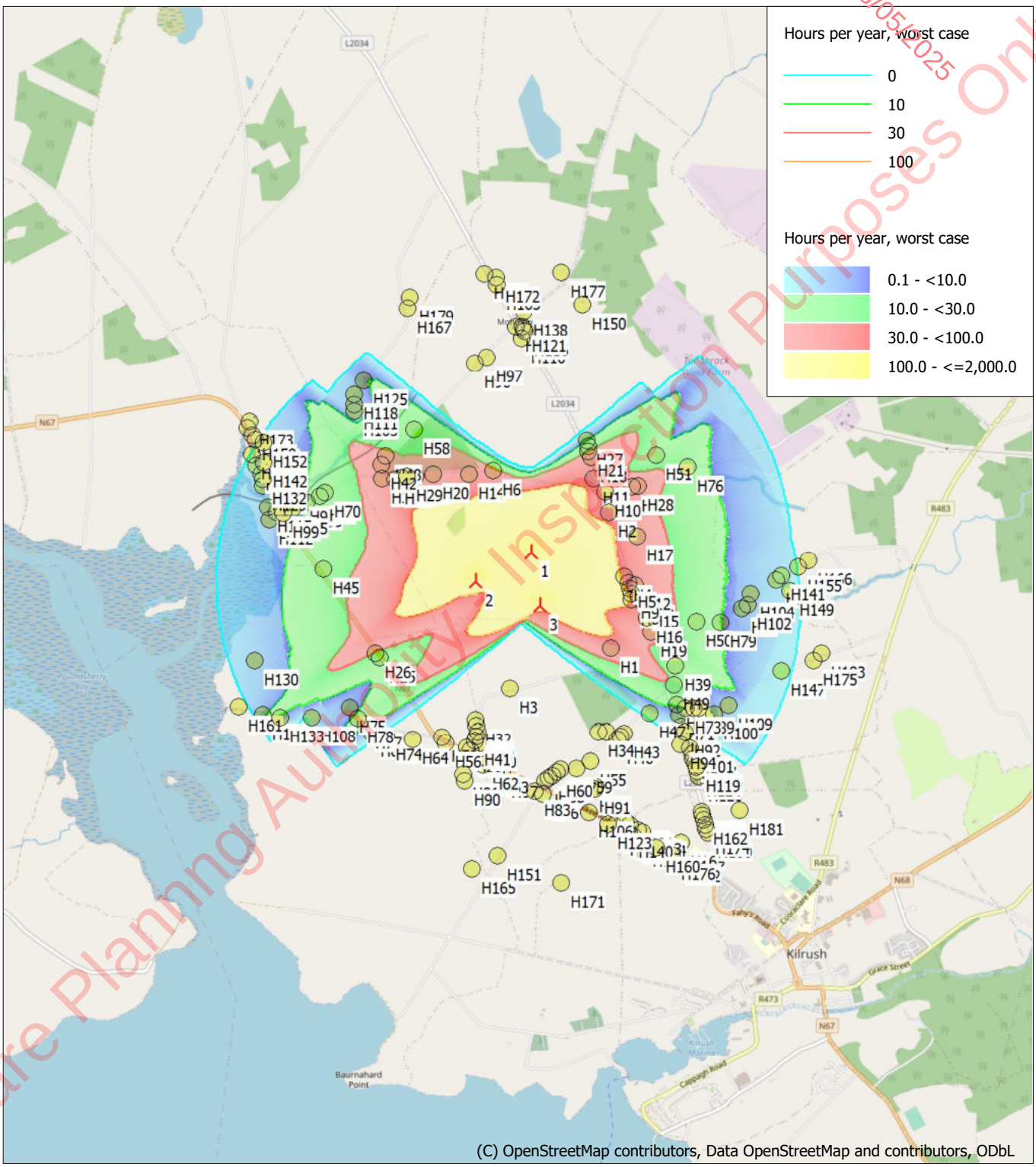
SHADOW - Map

Calculation: 6778 Moanmore Lower Only Worst Case



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 497,660 North: 657,950

New WTG Shadow receptor

Flicker map level: Elevation Grid Data Object: Ballykett WF Shadow Flicker_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Clare Planning Authority Inspection Purposes Only!